Optimization of Aggregate Gradation and its Effects on Properties of Normal Strength Concrete (M20)

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Abstract— Aggregate as the main constituent of concrete about 70% to 80 % occupy the total volume of the concrete. They highly affect the both fresh and hardened concrete properties of the concrete. By using of the optimization techniques such as Maximum density line or Power curve, Coarseness factor chart, Fineness modulus and Surface area, the cement content can be reduced, it gives the dense arrangement and improve the properties of the concrete such as workability, durability, compressive strength, etc., this paper is utilize to the normal strength concrete with several mixes by using optimization techniques.

Key words: Coarseness Factor, Workability Factor, Power Curve, Fineness Modulus

I. INTRODUCTION

The cement concrete is mixture of cement, fine aggregate and coarse aggregate with required amount of water and addition to admixtures like mineral and chemical admixture. Normally aggregates are the important constituents in concrete. It gives the structure of concrete. The aggregates effects on properties of the fresh and hardened concrete.

In cement concrete the aggregates are occupy nearly 70%-80% of the volume of cement concrete. The aggregates reduce the shrinkage and economy of the concrete. By use of aggregates their influence on cement concrete properties like strength, durability workability etc. For the achievement of high economy, the aggregates should be made clean, strong, bond strength, shape and texture, specific gravity, bulk density, voids, moisture content, fineness modulus and porosity.

The aggregates are generally divided into two different sizes they are coarse aggregate and fine aggregate. In cement concrete the coarse aggregate used for the main matrix and the fine aggregate used for fill the gaps or voids in between coarse aggregate. The aggregates also used for increasing the bulk density of the concrete.

Generally from making of the cement concrete cement is the high expensive material about 55%-65% of the total cost of the production of the cement concrete when compare to the other materials but uses of the cement content in concrete only 25%-35% of total volume of the concrete due to this reason the concrete cost is high. Reduce the cost of the concrete by using most advantageous technique of optimization of combined aggregate gradation techniques.

By using the optimization of aggregate gradation techniques cement content can be reduced up to 12%-15% of the total volume of the concrete and also the aggregates used in this techniques by combined well graded aggregates are used its improves the properties of the concrete like durability, workability, compressive strength, cohesiveness and economy.

This optimization of combined aggregate gradation provides the densest arrangement allowing the volume of the aggregate to maximize by minimizing the volume of the cement paste needed to provide sufficient workability.

The results is improve the workability, finishability and pumpability and reduced segregation when compare to concrete poorly graded aggregate gradation and reduced shrinkage by directly reducing the cement paste in cement concrete with possible of increasing the aggregate content in concrete and reduced the shrinkage translates into reduced concrete.

A. Power Curve

The Fuller and Thompson groundbreaking work on optimization gradation to the concrete on greatest strength and workability. They concluded that aggregate should be well graded in sizes and combined with cement paste give the high density. They developed an ideal maximum density curve. It was shown that the Fuller curve may not always give the maximum strength or maximum density (Wig et al. 1916).

Further research Talbot and Richart developed the equation for maximum density line in 1923. The equation shown below

$$P = \left[\frac{d}{D}\right]^n$$

Where
P= Combined percentage passing of aggregates,
d= Size of the particular or sieve size,
D= Largest particle or Maximum sieve size,
n= Grading type factor or Power factor (0.3, 0.35, 0.4, 0.45, 0.5, 0.55, 0.6).

B. Fineness Modulus

Abrams in 1918 study his own- famous work on concrete mix design. He found drawbacks with previous methods of proportioning for maximum strength because they neglected importance of the water. His primary concerned on strength, while workability was of interest only insofar as the concrete was workable enough to be used. However, he did state that there was a relationship between aggregate grading and the quantity of water required to produce workable concrete. To aid in the selection of aggregate gradations that would prevent the use of excessive water, he developed a method of representing aggregate gradation known as the Fineness modulus (FM). The fineness modulus equation given below

$$\text{Fineness modulus} = \frac{Cumulative\ Retained}{100}$$

In the ideal situation, a greater FM should be representing a coarser gradation. He developed charts that gave maximum fineness modulus that should be used with a given quality of water and cement-aggregate ratio. He suggested that any sieve analysis giving the same FM will

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Fresh Properties of Self Compacting Concrete using fly ash and Alccofine

Shaik Sabiya Sulthana, O. Nagaraju, J. Guru Jawahar

ABSTRACT--- Self compacting concrete (SCC) is emerging technology in the construction industry. SCC has the ability to flow and fill the formwork without using any external vibrations. In this study, fresh properties of ternary blended SCC using fly ash (FA) and alccofine (AF) are investigated. In this study, SCC mixes are manufactured in two categories. In the first category, the replacement level of FA was kept at 30% for all concrete mixes with varying dosages of AF (0%, 5%, 10% & 15%). In the second category, the replacement level of mineral admixtures (FA and AF) was kept at 35% with varying dosages of AF (0%, 5%, 10% & 15%). SCC fresh properties were investigated using slump flow, V-funnel & L-box tests. From the first and second category test results, it is observed that the optimum replacement of alccofine can be taken as 10%.

Index Terms— Self Compacting Concrete, Cement, Fly Ash, Alccofine, Fresh Properties.

1. INTRODUCTION

In the construction industry, concrete used as a construction material throughtout the world. The novel improvement of construction materials has been changing to meet the real world problems. For the sustainable concrete structures, concrete should be more durable and good quality throughout the construction [1]. Nowadays, various emerging trends have been implemented for the enhancement of properties of concrete.

Self compacting concrete is one of the innovative and emerging construction materials which were developed by Okamura in Japan in late 1980s to overcome the problems of external vibrations and labour deficiency. It has more advantages compared to conventional concrete like it attains homogeneity without bleeding and segregation and it can easily pass through the congested reinforcing bars under its self-weight without considering any mechanical vibrations [2]. This type of SCC was fulfilled by considering the passing ability, filling ability and high segregation resistance of fresh state SCC. SCC was prepared as same as conventional concrete, used materials are cement, aggregate, and water. With the addition admixtures are used to enhance the properties of SCC, this is the main difference to made of SCC compared to conventional concrete [3]. SCC was prepared with reducing the volume of coarse aggregate so to minimize the risk of flow through the congested bars. Usage of chemical admixtures into the SCC, its cost is increased and also due to high amount of cement most heat of hydration is produced. For the overcome of these problems, mineral admixtures those are byproducts or waste products are used to improve the properties of SCC. Most of the studies shown that mineral admixtures used in concrete were cost effective and reduce the cement content with an improved workability. mineral admixtures used in concrete not only reduce the cost, heat of hydration is controlled due to this thermally induced cracking of concrete is to be reduced [4 & 5]. Previous studies proved that different mineral admixtures including fly ash, GGBS, rice husk ash, silica fume are effect as enhance the properties of both fresh and hardened concrete and reduce water content with good homogeneity.

Bletty Baby and Jerry Anto (2017) investigated on self-compacting concrete containing micro steel fibers and alccofine with partial replacement on cement. They studied on alccofine with 5%, 10% & 15% replacement of cement and they get 10% as the optimum for both fresh and hardened state. Further with 10% alccofine they include micro silica fibers with 0.5%, 1% & 1.5% replacement on cement, they conclude that SCCA-10, M1% gives good results than normal mix SCC [6]. Tushar Bansal, Shilpa pal & Jaya Maitra (2018) studied on the performance of partial varying the alccofine and Metakoaline percentages (3%, 6%, 9%, 12% &15%) on M60 grade of SCC with constant fly-ash. They conduct the tests on fresh property (slump flow, v funnel, l-box tests) of mix SCC with different retention times of 30, 60, 90 mins, mechanical properties like compressive test were conducted at 7 & 28 days. Their experiment results showed that with increasing percentage from 3% to 15% of Metakaoline, slump flow, blocking ratio decreases and flow time increases with different retention times as compared to normal AF1mix. It is not acceptable for SCC. And with increasing percentage (3% to 15%) of alccofine, slump flow, blocking ratio increases and flow time decreases with different retention times as compared to control mix, acceptable for workability improvement of SCC. The compressive strength was increased to 72.43 MPa to 80.2 MPa up to 12% replacement of alccofine and Metakoaline on SCC further it decreased [7]. M.S. Pawar and Saoji (2013) investigated on alccofine as partial replacement and fly ash keep constant into the cement. They concluded that the physical characteristics of SCC, mechanical properties increased up to 10% alccofine replacement of cement compared alccofine 5% & 15% replacement. Manisha and Karjini investigated on alccofine as 5%, 7.5% & 10% by weight of the cement and fiber volume 1.5% fraction by concrete volume added to find the

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Investigation on Ternary Blended Self Compacting Concrete using fly ash and Alccofine

Bode Venkata Kavyateja, J. Guru Jawahar, C. Sashidhar

ABSTRACT--- *Self compacting concrete is one of the new concepts, without using any external vibrations and labors can easily fill the formwork even in difficulty places without segregation. For such cases, SCC possesses good flowability and cohesiveness. In this study, two mineral admixtures were used to improve the required quality of concrete. The main aim of this study is to evaluate the workability and compressive strength property of SCC containing mineral admixtures such as fly ash and alccofine. In this study the replacement of cement with fly ash was kept at 30% for all concrete mixes with varying dosages of alccofine (0%, 5%, 10% & 15%). Different tests such as slump flow, V-funnel & L-box tests were conducted to check the workability of SCC. Compressive strength values of SCC mixes were determined at different curing periods. From the test results, it is observed that the optimum replacement of alccofine can be taken as 10%. The test results indicate that the combination of fly ash and alccofine in cement replacement produce M25 grade concrete.*

Index Terms— Self Compacting Concrete, Fly Ash, Alccofine 1203, Super Plasticizer and Compressive Strength.

1. INTRODUCTION

Concrete used as a construction material throughtout the world. In the world, by the fast improvement of construction technology concrete properties have been changed. For the advance technology, concrete requires more durable and good quality throughout the construction [1]. Nowadays various concretes are available for the enhancement of properties of concrete.

Self-compacting concrete is one of the innovative concrete, was firstly developed by Okamura in Japan in late 1980s, to overcome the problems on congested reinforcement structures. It has more advantages compared to conventional concrete like it attains homogeneity without bleeding and segregation and it can easily pass through the congested reinforcing bars under its self-weight without considering any mechanical vibrations [2]. This type of SCC was fulfilled by considering the passing ability, filling ability and high segregation resistance of fresh state SCC. SCC was prepared as same as conventional concrete, used materials are cement, aggregate, and water. With the addition admixtures are used to enhance the properties of SCC, this is the main difference to made of SCC compared to conventional concrete [3]. SCC was prepared with

reducing the volume of coarse aggregate so to minimize the risk of flow through the congested bars. Usage of chemical admixtures into the SCC, its cost is increased and also due to high amount of cement most heat of hydration is produced. For the overcome of these problems, mineral admixtures those are byproducts or waste products are used to improve the properties of SCC. Most of the studies shown that mineral admixtures used in concrete were cost effective and reduce the cement content with an improved workability. mineral admixtures used in concrete not only reduce the cost, heat of hydration is controlled due to this thermally induced cracking of concrete is to be reduced [4 & 5]. Previous studies proved that different mineral admixtures including fly ash, GGBS, rice husk ash, silica fume are effect as enhance the properties of both fresh and hardened concrete and reduce water content with good homogeneity.

Bletty Baby and Jerry Anto (2017) investigated on self-compacting concrete containing micro steel fibers and alccofine with partial replacement on cement. They studied on alccofine with 5%, 10% & 15% replacement of cement and they get 10% as the optimum for both fresh and hardened state. Further with 10% alccofine they include micro silica fibers with 0.5%, 1% & 1.5% replacement on cement, they conclude that SCCA-10, M1% gives good results than normal mix SCC [6]. Tushar Bansal, Shilpa pal & Jaya Maitra (2018) studied on the performance of partial varying the alccofine and Metakoaline percentages (3%, 6%, 9%, 12% &15%) on M60 grade of SCC with constant fly-ash. They conduct the tests on fresh property (slump flow, v funnel, l-box tests) of mix SCC with different retention times of 30, 60, 90 mins, mechanical properties like compressive test were conducted at 7 & 28 days. Their experiment results showed that with increasing percentage from 3% to 15% of Metakaoline, slump flow, blocking ratio decreases and flow time increases with different retention times as compared to normal AF1mix. It is not acceptable for SCC. And with increasing percentage (3% to 15%) of alccofine, slump flow, blocking ratio increases and flow time decreases with different retention times as compared to control mix, acceptable for workability improvement of SCC. The compressive strength was increased to 72.43 MPa to 80.2 MPa up to 12% replacement of alccofine and Metakoaline on SCC further it decreased [7]. M.S. Pawar and Saoji (2013) investigated on alccofine as partial replacement and fly ash keep constant into the cement.

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IJRTE

Researchon Impact Resistance of Fibre Reinforced Concrete

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Abstract: in this exam, an undertaking is needed to bear in mind the impact restriction of fiber bolstered concrete. on this exam, a easy, rational and reasonable drop weight test become finished on fiber invigorated cement as indicated with the resource of ACI board 544. Fibers containing steel, polypropylene, sisal have been used because the invigorating in four unmistakable quantity components, for instance, 0%,0.five%,1%,1.five%. The results validated that developing the quantity part of fiber prolonged the impact deterrent of sturdy version stood out from customary bond. The outcomes moreover shown that steel fibers are greater dominant at extending the impact test than severa strands.

Keywords: About Fibre reinforced concrete, Steel, Polypropylene, Sisal, Drop weight test, Impact energy.

I. INTRODUCTION

Concrete is the most for the maximum element used development fabric in this world. commonly concrete has low flexibility and impact resistance on augmentation decks, Aircrafts, and so forth., for this reason steel, polypropylene, sisal strands are included with sturdy blend. due to an extending use of FRC (fiber-strengthened bond) being advanced like framework decks and army businesses against effect stacks, this robust has noteworthy career in human lifestyles. including strands to strong grows its pliability, unbending nature, flexural nice and obstacle towards dynamic and impact loads. so far now metallic and polypropylene are used being advanced industry. gift research, sisal fiber, metallic and polypropylene fibers are delivered to the strong. the brink volume (L/d) and extent department (Vf) are crucial fiber parameters in FRC. right while breaks are begun in FRC, the fibers endure the associated weights, when the pile grows the strands will through and massive transmit the excess stresses to the framework. In case these nerves outperform the fiber-matrix bond satisfactory, which as a result is motivated with the aid of fiber residences the smash device may incite strands pullout or unevenly burst of the fibers. As such, fiber invigorated concretes are extra adaptable than diverse bonds.

extraordinary hints are prescribed by way of diverse impact test techniques, for instance, shot impact test, drop weight check and dangerous take a look at and they may be used for the exam of effect obstacle of concrete [1-2]. among these systems the Drop weight test proposed by way of the ACI (American strong status quo) board 544 is the most clean

technique for surveying the effect drawback of Fibre[3]. test outcomes from robust models containing 0.five% to 1.5% of strands confirmed that the impact obstacle of bond prolonged both for beginning ruin and last component distinction and undeniable concrete. Marar et al. [4] exhibited that for FRCs containing zero.5%, 1%, 1.5% and a pair of% trapped quit metal strands with aspect extents of 60, seventy five and 83, the fashions with a higher fiber content material (in all of perspective extents) had a better effect first-class; moreover for models with 2% fiber substance and point of view extents likeness 60, seventy five and 83, the wolfed energies extended via 38, 55 and on numerous occasions, independently. Ramakrishnan et al. [5] uncovered that metallic strands prolonged the impact limitation of FRCs as much as numerous events differentiated and the effect restrict of undeniable concrete. using a drop hammer mechanical collecting, Nataraja et al. [6] investigated the effect nature of metal fiber-invigorated concrete with a angle extent of forty and two exceptional kinds, 30MPa and 50MPa. The effects showed that the effect nature of most of the models for the precept smash and remaining cut up prolonged as the quantity a part of fibers extended. They discovered that a 0.five% fiber substance provoked the impact insurances of the FRC check at the leader break and final split developing three and four (times gradually substantial) than the effects from the obvious concrete solely. The foremost attention of this challenge is to recall the effect limit parameter of fiber sustained bond with blend degree of fibers for M30 assessment concrete and performing otherwise with regards to the standard concrete and with understand the precise measurement of extension of strands to concrete and locating maximum outrageous extents

II. TEST STUDY

The take a look at examination become based totally on the impact of various fiber quantities on impact resistance of FRC. blend degree turned into organized using IS 10262-2009 and IS 456-2000 with imply goal nature of 38.25MPa (M30) for control mix.

fundamentalportland bond (kind 1) become used in this examination. a coarse aggregate with a most outrageous apparent length of nineteen mm and a first-class aggregate with a fineness modulus of 3.four were used inside the exam. Polypropylene, sisal and trapped stop steel strands had been used; their geometry and clean shape are confirmed up in Fig. 1,2,three and their homes are recorded in table 1. first rate plasticizer of SP-430 became used to change the usefulness of mixes.

An Experimental Investigation for the Permeableness of Chloride in Self-Compacting Geopolymer Concrete by using Rapid Chloride Permeability Test Apparatus

P.Ukesh Praveen, K.V.L Swarupa

Abstract— In the present investigation a trial is created to seek out electrical phenomenon of the geopolymer concrete towards the penetration of chloride ions by replacing the fine aggregate with vermiculite and copper slag. The methodology concerned during this study follows the codal specifications of C1202-05.This is most significant and advantageous technique for the rehabilitation of structures and for various studies.

Index Terms—Geopolymer concrete, Vermiculite, Copperslag, RCPT

I. INTRODUCTION

The transport of chloride ions into concrete is also a troublesome and mechanistic development. This check methodology covers the laboratory analysis of the physical phenomenon of concrete samples to provide a quick indication of their resistance to chloride particle penetration. In the most cases the physical phenomenon results have shown good correlation with chloride ponding tests. The permeableness of concrete depends on the pore structure of the concrete, whereas electrical conduction or electrical phenomenon of concrete is determined by every pore structure.

II. EXPERIMENTAL PROCEDURE

First of all cylinders of 1:3 mix is prepared with the dimensions of 10.2cm in diameter and 20cm height.

The casted cylinders ought to be set for proper curing.

➤ After completion of curing the sample should be cut into 5.1cm thickness.
➤ The prepared samples should be kept in mould of RCPT apparatus.
➤ Silicone sealant should be applied to the walls of the sample to avoid leakage.
➤ The moulds ought to be filled with the NAOH solution (+ve) and NACL solution (-ve).
➤ A Potential difference of 60V should be maintained.
➤ Readings ought to be noted for every 30min up to 6hrs.

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➤ The obtained readings should be substituted in the formula below:
➤ I cumulative

$$= I_0 + ((I_{30}+I_{60}+I_{90}+I_{120}+I_{150}+I_{180}+I_{210}+I_{240}+I_{270}+I_{100}+I_{330})x2)+I_{360} I_{AVERAGE} = 900 X I_{CUMULATIVE}$$

Where I=Current Reading In mille amperes

The obtained values ought to be compared with the table below and the result is determined.

Table: I Comparison of values from the Results

CHARGE PASSED IN COLOUMBS	CHLORIDE ION PENETRABILITY
>4000	HIGH
2000-4000	MODERATE
1000-2000	LOW
100-1000	VERY LOW
<100	NEGLIGIBLE

III. SELF COMPACTING GEOPOLYMER CONCRETE MIX DESIGN PROCEDURE

8 Molarity:

Step 1: The wet density of geopolymer concrete=2400 kg/m^3

Step 2: Mass of combined aggregate = 72.8% of the mass of concrete

= (72.8*2400/100) = 1747.2 kg/m^3

Step 3: Mass of Binders and the alkaline liquid = 2400-1747.2 = 652.8 kg/m^3

Step 4: Alkaline liquid to Binders ratio by mass = 0.45

Step 5: Assuming flyash content = 450 kg/m^3
GGBS content = 450 kg/m^3

Step 6: Mass of alkaline liquid = 0.45*450 = 202.6 kg/ m^3

Step 7: Ratio of sodium silicate to sodium hydroxide solution = 2.5

Step 8: Mass of sodium hydroxide solution = 202.6/ (1+2.5) = 57.9 kg/ m^3

For 1 molar sodium hydroxide solution, 40g of sodium hydroxide pellets are dissolved in 1 liter of water.

i.e., for 1 molar: 40g pellets → 1000g or 1000ml of water.
For 8 molar: 8x40g of pellets → 1000g or 1000ml of water.
% of sodium hydroxide solids(pellets) in NaOH Solution = 32 %

Efficiency of Natural Zeolites in Concrete

K. Narasimhulu, K. Ganesh Babu, Pavan Kumar,Ukesh Praveen

Abstract: Everyday zeolite is a mineral admixture containing huge measures of responsive silica and alumina. due to this zeolite is used as a partial pozzolanic exchange material for bond, as, silica smoke and fly powder. In like way, being an amazingly best material. zeolite like the case with silica seethe, add to the nature of concrete both via the filler sway and the pozzolanic reaction. the existing paper attempts to survey this first-rate adequacy of trademark zeolites in bond. like the case with the various pozzolans, the excellent functionality become visible to be a mix of the general profitability factor that's a segment of the age and the rate adequacy element which vacillates with the substitution fee. the general profitability thusly evaluated declines the water to cementitious cloth extents of zeolite bonds at the various substitution degrees to that of the common robust, getting ready for a normal blend plan at a particular substitution price.

Keywords: Natural zeolite, efficiency, compressive strength, w/c ratio.

I. INTRODUCTION

Zeolite tuffs as combos with lime have been normally utilized in coming considering that Roman events. Zeolites are hydrated aluminosilicate minerals with a case like structure that offer huge floor zone and furthermore consolidate an immense proportion of responsive silica and alumina. this is chargeable for its better pozzolanicity, which allows in improving the compressive power further to the strength characteristics of the strong. The pozzolanic reaction urges to diminish the permeability, refine the pore structure, basic to a refund inside the dispersal of dangerous particles. The goal of this examination is to investigate the parameters that influence the power lead concrete containing remarkable odds of zeolite.

II. FAVORING REPUTATION

Facts to be had at the dedication of zeolite to even the nature of concrete, the best conventionally thought about parameter, is correct now for all intents and purposes no. Feng et al. [1-4] have verbalized a couple of examinations concerning the lead of zeolite in concrete. emphatically clearly one of their underlying examination have exhibited that a five to 10% shot of bond with the advantage of zeolite in concrete on the w/c extents of 0.31 to 0.35 made a ten fifteen% higher compressive power stood out from the traditional concrete. In particular, a ten% substitution of zeolite in strong (50 kg/m3) with 450 kg/m3 of run of the mill Portland bond (OPC) and at a water bond extent of zero.35 understood a compressive intensity of around eighty

MPa, while the contrasting intensity of an ordinary concrete and 500 kg/m3 of OPC wound up least troublesome 70 MPa [1]. Zeolites have been moreover used in making spilling concretes, in which about 10% of bond was changed. With a fitting measure of superplasticiser and at a water bond extent of generally zero.32, an extreme power gushing strong (hang of around 160 to 2 hundred mm) with a compressive essentialness of approximately eighty MPa become gotten [2]. It changed into other than affirmed that joining of zeolites in bond decreased kicking the bucket, widened the thickness of the strong , detachment in shining strong, thusly superb the necessities of siphoning concrete for creation [3]. Zeolites have been likewise undeniable to be appropriate for stopping the acid neutralizer silica reaction by techniques for the use of cutting down the dissolvable base molecule center in the pore game plan in concrete through molecule change, adsorption and pozzolanic response of the zeolite [4]. Chan and Xihuang [5] as took a gander at the general execution of zeolites in bond with different pozzolans like silica fierceness and pulverized fuel red hot remains (PFA) at the bond substitute periods of five to 30% in concrete with water to standard cementitious surface extent [w/(c+z)] saved steady at 0.28. Their outcomes demonstrate that zeolite lessened depleting and extended the consistency of concrete without extensively choosing the hunch. in like manner at 15% elective degree it provoked a 14% extension in strong quality at 28 days conversely with the direct concrete. besides, an appraisal of zeolite, silica smoke and PFA at 10% overriding of bond in concretes with [w/(c+z)] inside the kind of zero.27 to 0.45 certified, that zeolite performed higher than PFA in any case was not too incredible as silica seethe the extent that working up the power, cutting down the preliminary floor maintenance and chloride spread. regardless, the microstructural consider on concrete with zeolite found that, the pozzolanic impact of zeolite propelled the microstructure of hardened bond stick and decreased the substance of the gigantic pores, along these lines made concrete increasingly unmistakable impermeable.At this stage it can best be appropriate and is in like way conceivable basic to suggest tolerable unimportant specs for the characteristics of the zeolites which is probably bolstered for use in bond, as in case of the opposite mineral admixtures, in light of on the bits of knowledge to be had inside the composition. it very well may be urged that zeolites for cementitious programming system should, by using and immense, have the total of $SiO_2+Al_2O_3+Fe_2O_3$ content in the spot of eighty%, a fineness with a center atom size of around five to 7μm and an incident on begin (LOI) of about 10% most. it may be seen that the 10% LOI that is referenced by methods for

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IJITEE

An Experimental Investigation on Strength Properties of Concrete by Partial Replacement of Cement with Fly Ash and Fine Aggregate with Stone Dust

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Abstract— Cement production leads to CO2 emissions generated during calcinations of CaCO3 and by burning of fuel, is responsible for about 5% of the CO2 emissions in the world. This can be reduced if the pozzolanic materials such as a flyash replacecement within the limits. Now-a-days river sand availability is also reduced and becomes difficult to find due to which there was a need to find an effective alternative. Stone dust, is found as an economic substitute material for river sand as it is a waste material which is obtained from the crusher plants. It can be used to replace river sand partially in concrete. In the present investigation, we have investigated the strength properties of the concrete made with stone dust as partial replacement of fine aggregate in concrete and fly ash as cement. M30 grade mix design is developed using IS design for conventional concrete and replaced mix. Cube specimens (150mm X 150mm) were prepared for both conventional and 30%, 60%, 100% replacement with quarry dust which were further modified by partially replacing cement with 10%, 20%, 30% and 40% of low calcium fly ash. Tests carried on specimens after 3days, 7days, 28days, 56days and 90 days curing to attain its maximum compressive strength. Graphs were drawn and results are compared with the controlled concrete.

Index Terms— Compressive Strength, Flexural Strength, Replacement and Split Tensile Strength.

INTRODUCTION

Cement industries are already facing the shortage of good quality raw materials to produce cement. Many industries are producing unmanageable amounts of wastes as by-products. A variety of these unwanted materials can be used as mineral admixture in concrete. Though, huge volume of natural mineral admixtures is to be used as ingredients for cement, concrete etc. So, continuous investigations are require to be carried out to utilize these greater amounts of by-products as natural mineral admixtures in cement and concrete.

Concrete is widely used in making foundations, pavements, bridges, architectural structures, motorways, dams, reservoirs, pipes, fences and poles. The present day concrete demands high performance with economy. Concrete is a material with which any shape can be cast. It is very hard to find other construction materials like concrete.

The concrete properties mainly depend on its constituents. The main important materials used in making concrete are coarse aggregate, cement and fine aggregate. The properties of cement, sand, stone dust and water effects the concrete quality.

After hardening, the strength and stability remains the same even under water. The most important area of application is therefore the mortar and concrete production.

The formation of these compounds is not simultaneous. Tricalcium silicate is responsible for imparting strength to cement in early period of setting. Dicalcium silicate is responsible for later strength development.

MATERIALS

Different tests on the materials used in this present study is done and the material properties is mentioned below in the following sub-sections.

2.1 Cement

Initial experiments like standard consistency, final and initial setting time, specific gravity, soundness and fineness of cement were conducted on Ordinary Portland Cement. Hence, OPC was used in the present investigation. The chemical composition of the OPC was analyzed as per the standard procedures mentioned in IS 4032:1968. The results of the analysis of the Ordinary Portland cement are presented in 2.1 Table

Table 2.1   Physical Properties of Cement

Sl. No.	Property	Result
1	Standard consistency	30%
2	Specific Gravity	3.12
3	Setting times (minutes) a) Initial b) Final	 90 min 650 min

2.2 Sand

The sand used in the whole investigation was obtained from the Swarnamukhi river near Tirupati, Chittoor district. The properties of sand were analysed as per the procedures mentioned in IS 2386: 1963 and were represented in 2.2 table.

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Mechanical properties of sustainable concrete incorporating manufactured sand and rice husk ash

KG Rahul Varma, P. Jagadeesh

Abstract— Because of high constructional activities, use of concrete is very extensive and its ingredients, i.e. cement, sand and gravel becomes scarce. Many studies were carried out by researches for partial or optimal replacement of cement, sand and gravel by alternate materials. Cement production leads to global warming as CO_2 is released in atmosphere during its production, equal to seven percent of total CO_2 emission in world. Therefore cement is partially replaced by rice husk ash (RHA) as it is rich in silica. Large space in concrete (35%) is filled by sand. Natural sand may get exhausted in future because of its high demand. Digging of sand in huge quantity nearby rivers is hazardous to environment as it effects ground water level and causes soil erosion. Therefore natural sand is partially replaced by manufactured sand (MS) as MS is obtained on crushing of granite rocks which are easily available at nearby places. Use of MS reduces the transportation cost of carrying natural sand from far-off river beds. In the current study, cement is partially replaced by RHA by 10% and sand by MS by 25%, 50%, 75% and 100% to get desired strength concrete. Various tests like compressive strength, split tensile strength and flexural strength were conducted on specimens. Present study revealed that to get M20 concrete, 100 % sand replacement with MS is the optimum proportion for 10% replacement of cement with RHA.

Keywords — Rice Husk Ash (RHA), Manufactured Sand (MS), Fly Ash (FA), Compressive strength(CS), Split tensile strength(ST), Flexural strength(FS).

I. INTRODUCTION

After water, the most used material by humans on the earth is concrete which is highly used in construction for its high strength and stability. If its consumption is done at the same rate, it may get exhausted in the coming future. Cement, sand and gravel are the ingredients used in concrete, so we have to find alternatives to replace these ingredients in concrete which will be easily available at all times at low cost to give good strength eco-friendly concrete. Production and consumption of cement as per International Cement Review (USGS Mineral Resources Report, Tech Sci Research) is shown in Figure 1 and Figure 2 respectively.
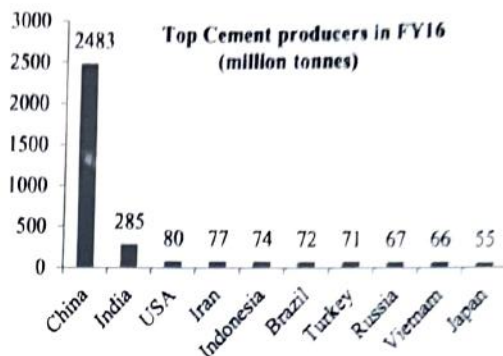

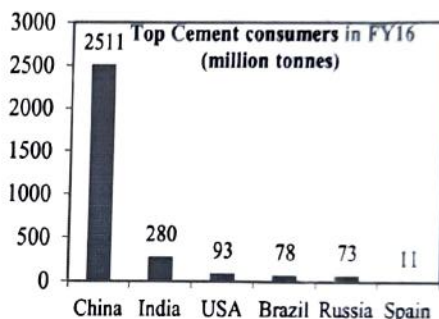Figure 1. Top Cement producing countries in the world.

Figure 2. Top cement consumers in 2016

Cement is a chief ingredient in concrete production. Huge quantity of raw materials and energy is consumed in cement production. Cement production leads to global warming as CO_2 is released in atmosphere during its production, equal to seven percent of total CO_2 emission in world as mentioned by Vinita [6]. Therefore there is a need of finding alternative for cement to meet its future demand. Using industrial and agricultural by products as partial replacement for cement can save cost, energy and environment. Reduction of cement use will reduce CO_2 emission. Human activities produce wastes over 2500 MT per year from industries, agriculture and from rural and urban areas. It has been proved from research that many useful products can be produced using these solid wastes as organic and inorganic resources. Fly ash (FA), blast furnace slag (BFS), rice husk ash (RHA), silica fume (SF) and demolished construction materials are

Mechanical Properties of Recycled Coarse Aggregate Concrete by Partial Replacement of Cement with GGBS and Fly Ash

N. Janardhan, T.Venkaiah, S.Sameer

Abstract— - in this examinations, it is made to test the power spots of reused coarse mix by methods for inadequate overriding of bond with GGBS and fly ash. on this examination, compressive power, split versatile power and flexural intensity of the reused bonds by techniques for the usage of partial shot of cement with outstanding potential results of GGBS and fly blazing remains. The results got is as differentiated and the regular bond.

Key Words —Compressive strength, Split tensile strength, Flexural strength, Recycled aggregate.

I. INTRODUCTION

The use of concrete is prolonged to uncommon degree. Concrete exhausts limitless massive measures of sums. for the purpose that sums are non feasible so utilization of proportion of all out might adversy have an effect on the earth. Plus, the improvement and obliteration waste dumping transforms into a giant problem. in this way, it subsequently ends up critical to reuse the development and destruction waste and reuse it.

All development sports activities calls for a couple of materials, as an instance, square, stone, glass, earth, robust, metal, mud, timber, and lots of others. Regardless, the robust stands as the rule development fabric used being advanced companies. Concrete installation itself because the maximum versatile improvement cloth in all the requests of auxiliary making plans because of its immoderate compressive exquisite.what is more, trademark assets are depleting astoundingly due to expansive enthusiasm for brand spanking new upgrades. it's far surveyed that the development commercial enterprise in India makes usage 10-12 million masses of waste each year. The reused all out use in concrete is grabbing predominance all through the world due to the sensible improvement.

India is ultimately delivering development and destruction (C&D) waste to the song of 23.seventy five million masses continually and people figures are maximum possibly going to twofold inside the accompanying 7 years. C&D wastes were considered as a benefit in made worldwide locations. Wears down reusing of C&D wastes have highlighted that if old bond ought to be used in second duration concrete, the aspect must have the specified compressive amazing. Many research works famous that the compressive first-rate essentially is based upon at the pursued mortar, water ingestion, size of combination, figure robust's excellent, alleviating duration and extent of substitution, degradations gift and condition.

The fundamental roles behind addition in extent of C&D waste are consistent with the accompanying:

i. Many augmentations and crushed structures.

ii. The structures which are tasteful to apply may be overwhelmed as they now not serving the necessities in current-day circumstance wishes.

iii. constructing waste effects because of from counterfeit failure.

The reusing and reuse of C&D wastes appear, with the aid of all payments, to be a probable response for every deficiency of unrefined materials and waste dumping troubles. Reusing C&D waste turn out to be noteworthy usually for the international locations wherein skip of C&D wastes with heading, disciplines, requests, and so on.

The shortage of speedily available combination and developing price of delivery, which makes constant stress to apply reused substances as substitution to the trademark all out.

The development agency is one of the cash related fragments that are gradually responsible for using normal assets. within the aspect the sports activities related to using using ordinary sources. within the place the sports related to using C&D waste anticipate a important hobby. the use of one of a kind kinds of waste substances for cutting-edge things is a creating as an normal instance.

Close to the crowning glory of the presence cycle, a fabric breezes up waste, which can be changed into a few other fabric to make new topics or to be used in helper applications.appropriate reusing of waste material is used to make any other cloth of relative tendencies, as such achieving better profitability in its lifestyles cycle.

II. MATERIAL RESIDENCES

On this gift exam coarse combination, stable, quality mixture, water, Recycled Coarse mixture, fly blazing remains and GGBS had been used. tremendous all out is gotten from community Swarnamuki flow. common coarse entire is tested from network quarry near Chandragiri. Reused entire is gotten from the squashed sturdy shapes from assistant making plans exploration attention. adjoining consuming water is used for mixing and diminishing.

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T.Venkaiah,Annamacharya Institute of technology and sciences,Tirupati, A.P, India (venkaiah.thummuru@gmail.com)

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Influence of non-woven fabric as controlled permeable formwork liner in concrete

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Abstract

The suitability of locally available non-woven fabric as controlled permeable formwork liner in different grades of concrete (M20, M30 & M40) was studied. The performance of conventional steel formwork concrete and non-woven fabric liner concrete were compared. From the test results, the properties of the non-woven fabric liner concrete were superior to those of the conventional steel formwork concrete. The performance of non-woven fabric liner was notable in M20 concrete grade. Overall, the use of locally available non-woven fabric liner in different grades of concrete resulted in a strong and dense cover concrete pertaining to a durable reinforced concrete structures.

Introduction

Durability of concrete is significant in the preservation of the structure's service life. Factors such as water-cement ratio, specifications of concrete making ingredients and quality of workmanship governs the durability of concrete [1]. Apart from these factors, the quality of cover concrete plays a vital role, due to the directly exposed to diverse environmental conditions subjected to both chemical as well as mechanical induced deteriorations [2], [3]. The quality of cover concrete produced from conventional formwork (steel or wood) is poor as compared to that of the core concrete [4]. Compaction of fresh concrete leads to accumulation of water and air near to the conventional formwork, which subsequently results in poor cover concrete. This is evident by the presence of blowholes/air pockets/blemishes in the surface of concrete [5]. Many researchers focus on this issue, which motivated for the application of liner material along the surface of steel

Regulation of Frequency in the Wind Plants Integrated Grid by H-Infinity Approach

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Abstract— **Among different renewable energy sources wind energy system has a prominent role and a special concentration to be taken for integration into a conventional grid. The major issue with the integration of wind plant is its intermittency nature and the causing perplexities. If such a wind plant is integrated into a conventional grid besides load variations, these uncertainties caused by wind plant also introduced. As a result of above concerns greater imbalance takes place between power generated and the load demand, leading to enhancement of frequency variations and inertia of the entire system is decreasing. In general existing hydro-governor systems itself not consider the dynamics of other power components. Also the employed PID controller is not enough to address these issues.**
In order to pertain the robustness and stability of all dynamic systems considering the wind power variations, hydraulic system dynamics of hydro-electric plant ,a robust controller is framed which reduces the order of the system model. To verify the performance of the designed robust controller, an IEEE-39 bus test system is use and the performance verification is done by using of MATLAB software.

Keywords: Robust control, Wind power varince, State space model, frequency.

I. INTRODUCTION

The frequency of power systems, that indicates the power imbalance between generation and demand, should be confined to a slender vary around its value [1]. By adjusting real power injections on generation facet, the system frequency can be regulated in a hierarchical fashion, comprising three different layers at different timescales. In this regulation mechanism, the primary frequency control provides the most rapid adjustment to system frequency deviation by the local speed governor on each generator, while the secondary frequency control drives the frequency back to its nominal value and tie-line power flows to scheduled values by adjusting economic dispatch, schedules the outputs of online generators and power flows using optimization methods [2], [3].Load variations are usually taken as the main disturbances

in the frequency control loop in traditional power systems [4].With significant wind power penetration, variabilities and uncertainties are introduced into power systems as wind power outputs are highly fluctuating and their prediction accuracy is much lower than the accuracy of load forecasts [5], [6]. This results in large mismatch between the power supply and the demand for electricity, leading to the increase in frequency deviations from the nominal value [7]. In addition, as most of modern wind generators are connected to power grids by power electronic converters, they contribute no inertial response to power systems [8]. In the near future, with more synchronous generators displaced by wind generators, the frequency of power systems will be more sensitive to the imbalance between generation and demand as the inertia of the whole system is decreasing. Hydro power generators have long been the primary actor in frequency regulation of power systems due to their fast responses to short-term demand variation [9]. In the meantime, due to the smoothing effect of clustered wind generators in the system, the whole fluctuation rate of wind power will be smaller than that of any single wind generator, making it possible for hydro generators to adjust wind power [10], [11]. With the increasing penetration of wind power, hydro power plays a more important role in frequency regulation especially for primary frequency control [12]. However, the existing management framework of hydro governors is designed based mostly on parameters of the hydro generation system itself, ignoring the dynamics of alternative facility parts [13].

These controllers so cannot change alternative disturbance sources in power systems, resulting in larger system frequency deviations. This limitation could limit the frequency management performance of hydro generators in power systems with air current penetration .Moreover , hydro power plants have special behavior of water columns and unit bestowed within penstocks once water flow management valves operate throughout the regulation method [14].Attributable to the upper wind generation penetration, a lot of frequent and fast regulation actions are required for the

A Study on the Need for Gender Development, Gender empowerment and Female empowerment Indices

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Abstract

Female empowerment is both a fundamental human right and a critical growth objective to be pursued. A study is being undertaken of different indexes to monitor the empowerment of women. The annual human development reports are produced by the UN Development Programme (HDRs). In effect, the HDRs have pushed development talks and attention from single, income or GDP indices to the inclusion of non-income and multi-dimensional growth measuring factors. Two new indicators have been adopted in the UN Development Program (UNDP: the Gender Development Index) and the Gender Empowerment Mass. (GEM). Since 1990, UNDP's HDRs have computed HDI, as well as GDI and GEM, on an annual basis. Erica M.RettigaStephen, E.FickbRobert, and J.Hijmansa developed the Female Empowerment Index (FEMI) to track different aspects of women's empowerment at the sub-national level. The index is based on six domains of empowerment: violence against women, employment, education, reproductive healthcare, decision-making, and access to contraception. The FEMI is calculated as the mean proportion of positive outcomes across the six categories and ranges from 0 to 1 (Low to High empowerment). The CFR Women's Power Index ranks 193 UN Member States as regards their progress to gender parity in political participation. It was created by CFR's programme on women and foreign policy. This paper discusses the percentage and the gender gap between the political representation of women as heads of state or Government in cabinets, national legislatures and as candidates for a national legislature, and local Governments.

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The Queen Bee Syndrome: The Glass Ceiling To Be Broken

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Abstract

The dearth of women leaders, particularly senior female leaders, has spurred a lot of global dialogue. While more women than men are university graduates in 97 out of 145 major and developed countries worldwide, men make up the majority of technical staff in only 68 of the world's countries and are the mainstream leaders in just four. In contrast, women currently hold just 4 percent of CEO positions at S&P 500 corporations. Women come across several hurdles in shaping their career and become successful in it. Customarily, they bump into contests with their male superiors and colleagues. Unconventionally same-sex suppression has been observed in recent times, which is familiarly known to be as 'Queen Bee' syndrome. It is presumed that the women exhibiting this syndrome would have been the mean girls in their school ages, who are now more dangerous and more calculating. The features of behavior of a Queen Bee syndrome include gossip, social rejection, social detachment, social separation, talking and romantic relations. The Queen Bee Syndrome is a challenging issue that has not been validated by scientific research and result. It is seen more of a perception-based. It may be a view of the age regardless of the gender. Consequently, the myth that there is something inherent in females that impedes other women's development is indispensable.

Key words: Glass ceiling, Queen Bee syndrome, Women leaders, Workplace.

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The Fairytale Of Workplace Queen Bee: The Illustrious and Deceitful

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Abstract

We've been able to hear that the fairy terms of cat fighting, mean girls and queen bee syndrome stem from the wider belief that women are not helping or actively emasculating other women. Queen Bee Syndrome is often portrayed as afflicting women leaders in popular culture. We will see queen bees, because of gender differences, although they are not necessarily there. After a number of studies have been reviewed, it seems that older women are less risky for younger women than senior men. According to researchers, women have less evidence of being competitive with other women than men, and women and men have comparable antagonisms. Our aspirations of executives are worthy of the belief that Queen Bees are so common. As women are expected to be sympathetic and courteous, people see women as unfavorable to exhibit efficacy in leadership roles. Thus, even though women's leaders do not behave other than men, the dual standards facing women would perceive them as being contrary.

Key words: Cat fights, Mean girls, Queen Bee syndrome, Twokenism.

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Losses Reduction in Radial Distribution System Using STATCOM

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Abstract— This paper deals with Design, Modeling and Simulation of Ten Bus System using Matlab Simulink. The Ten Bus Systems with and without STATCOM are modulated, Simulated and the results are presented here. The Simulation Results indicate that the real power loss and reactive power loss are reduced by introducing multiple numbers of STATCOMs. The STATCOMs are introduced at the weak buses and the reduction in losses was observed.

Keywords—STATCOM, formatting, Modeling and Simulation.

I. Introduction

The traditional steady state stability studies and transient stability take into account the active power flow P and power angle δ and generally assume constant receiving and sending end bus voltage. The reactive power flow Q and voltage fall during heavy current flow is neglected. This approach could not explain the several black-outs in USA, Europe, Japan etc. during the last quarter of the twentieth century. The blackouts were due to voltage collapse. During voltage collapses, the bus voltage starts falling and as a result power transfer P through the transmission line starts reducing resulting in ultimate voltage collapse and loss of system stability of entire network. That's why voltage stability studies have received more attention and have acquired a vital place in power system studies. Voltage collapse phenomena take place where reactive power management is inadequate.

II. Basic Configuration and Principle of operation

Basically, shunt connected FACTS device can be realized by either a VSC or a CSC [4]. But the VSC topology is preferred because CSC topology is more complex than VSC in both power and control circuits. In CSC such as GTO (Gate Turn Off Thyristor) is used, a diode has to be placed in series with each of the switches. This almost doubles the conduction losses compared with the case of VSC. The DC link energy storage element in CSC topology is inductor where as that in VSC The application of power electronics in the electric power transmission plays an important role to make the system more reliable, controllable and efficient [1]. Due to deregulation, environmental legislations and cost of construction, it is becoming increasingly difficult to build new transmission lines. Thus it is essential to fully utilize the capacities of the existing transmission system. The Flexible AC Transmission System (FACTS) has become a popular solution to our large/overextended power transmission & distribution system. FACTS devices are proving to be very effective in using the full transmission capacity while increasing power system stability, transmission efficiency and maintained power quality and reliability of power system. These devices are mainly based on either voltage source converter (VSC) or current source converter (CSC) and have fast response time. As an important member of FACTS devices family, STATCOM has been at the centre of attention and the subject of active research for many years. STATCOM is a shunt connected device that is used to provide reactive power compensation to a transmission line. This controller can either absorb or inject reactive power whose capacitive or inductive current can be controlled independent to the AC line voltage. Thus, STATCOM can enhance the transmission line load ability by extending the MW margin and improves the oscillation of voltage transients through efficient regulation of the transmission line voltage at the point of connection [1]-[3].

The shunt controller is like a current source, which draws from or injects current into the system at the point of connection. The shunt controller may be variable impedance, variable source or a combination of these [10]. Variable shunt impedance connected to the line voltage causes a variable current flow and hence represents injection of current into the line. As long as the injected current is in phase quadrature with the line voltage, the shunt controller only supplies or consumes reactive power. When system voltage is low, the STATCOM generates reactive power (STATCOM capacitive). When system voltage is high, it absorbs reactive power (STATCOM inductive). The variation of reactive power is performed by means of a VSC connected on the secondary side of a coupling transformer. The VSC uses forced-commutated power electronic devices (GTOs, IGBTs or IGCTs) to synthesize a voltage V2 from a DC voltage source. Any other phase relationship will involve handling of real power as well [11]. So, the shunt controller is therefore a good way to control the voltage at and around the point of connection through injection of reactive current (leading or lagging) alone or a combination of active and reactive current for a more effective voltage control and damping of voltage dynamics [12].

III. Simulation Results

Without STATCOM of Ten Bus Radial System is shown in Fig.1.1. The Voltage at Bus-5 is shown in Fig.1.2. At the same Bus-5 the Real & Reactive powers are shown in Fig.1.3.Next here shown the Ten Bus System with

Investigation of mechanical properties on nano cuprous oxide coated/uncoated spur gear

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Abstract. Metals and their alloys have been widely used in all aspects of science and engineering. However the science of nanotechnology is driving newer demands and requirements for better performance of existing materials and also at a higher level of precision. This is naturally presenting complicated demands on the surface of these metals with a need for surface modification. In the present scenario it is noteworthy that nano scaled particle coatings enhances the mechanical properties in the metals rather than the macro or micro sized particles. Hence an attempt was made to characterize the mechanical properties of cuprous oxide nano particles coated spur gear (Mild Steel). The mechanical properties such as tensile, hardness and corrosion (salt spray) were experimentally investigated at ambient condition. A deep compression had been made between the coated and uncoated gear. The results reveal that the coated gear shows better performance compared with uncoated gears.

1. Introduction

The possibility of lightening mechanical components is becoming more and more important for the future, particularly in the automotive and aerospace fields, where the availability of more power with low gas polluting emission is fundamental. However, very often the fatigue behaviour, as well as the wear resistance and load bearing capacity of light alloys are poorer than the ones of steels. From this point of view, thin hard coatings deposited by means of PVD (physical vapor deposition) technique enables enhancement of hardness, wear, corrosion resistance and mechanical properties of mechanical components and are, for the time being, widely used in an increasing number of applications [1, 2]. A few decades ago, the cutting and machining tool field was the first to be interested in the improvements of the tribological properties achieved with these coatings, and from then on, their development has interested many other industries such as aerospace, automotive and biomedical ones.

Research studies have also demonstrated that the mechanical and corrosion properties of coated components can be increased by some coatings [3–10]. In fact, the residual compressive stresses induced at bulk material surface by some deposition processes prove beneficial to the fatigue resistance, provided that the coating is uncracked and free of defects. Therefore, coated light alloys

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ATM Security with Biometric Authentication

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abstract*Abstract:-* Main intension is to improve security in banking region. With the help of ATM though banking became a simple it even became a dangerous. The chances of misuse of this much 'insecure' baby product (ATM) are manifold due to the exponential growth of criminals day by day. ATM systems useing today no need more than an access card and PIN for identity verification. This situation is unfortunate since tremendous progress has been made in biometric identification techniques. This paper proposes the development of a system that integrates biometric technology into the identity verification process used in ATMs. The development of such a system would serve to protect consumers and financial institutions alike from imposture and other breaches of security.

1. INTRODUCTION

The rise of technology in India making people satisfy. ATM is one such machine which made money transactions simple for customers to bank. The other side of this improvement leads to misusage of technology . Traditionally, security is handled by requiring the combination of a access card and a PIN in order to access a customer's account. This model invites fraudulent attempts through stolen cards, badly chosen or automatically assigned PINs, cards with little or no encryption schemes employees with access to non-encrypted customer account information and other points of failure may be occur.

our paper proposes an automatic teller machine security model that would combine a physical access card, a PIN, and Biometric Authentication. By forcing the ATM to match a live details of a customer's with an details stored in a bank database that is associated with the account number, the damage to be caused by stolen cards and PINs is effectively neutralized. Only when the PIN matches the account *and* the live details and stored details match would a user be considered fully verified.

The main issues faced in developing such a model are keeping the time elapsed in the verification process to a negligible amount, allowing for an appropriate level of variation in a customer's details when compared to the database details, and that credit cards which can be used at ATMs to withdraw funds are generally issued by institutions that do not have in-person contact with the customer, and hence no opportunity to acquire a photo.

Because the system would only attempt to match two discrete images, searching through a large database of possible matching candidates would be unnecessary. The process would effectively become an exercise in pattern matching, which would not require a great deal of time. With appropriate lighting and robust learning software, slight variations could be accounted for in most cases. Further, a positive visual match would cause the live details to be stored in the database so that future transactions would have a broader base from which to compare if the original account details fails to provide a match thereby decreasing false negatives.

When a match is made with the PIN but not with the Biometrics, the bank could limit transactions in a manner agreed upon by the customer when the account was opened, and could store the details of the user for later examination by bank officials. In regards to bank employees gaining access to customer PINs for use in fraud transactions, this system would likewise reduce that threat to exposure to the low limit imposed by the bank and agreed to by the customer on visually unverifiable transactions.

In the case of credit card use at ATMs, such a verification system would not currently be feasible without creating an overhaul for the entire credit card issuing industry, but it is possible that positive results achieved by this system might motivate such an overhaul.

The last consideration is that consumers may be vary of the privacy concerns raised by maintaining details of customers in a bank database, encrypted or otherwise, due to possible hacking attempts or employee misusage. However, one could argue that having the details compromised by a third party would have far less dire consequences than the account information itself. Furthermore, since nearly all ATMs videotape customers engaging in transactions, it is no broad leap to realize that banks already build an archive of their customer details, even if they are not necessarily grouped with account information.

2.LITERATURE REVIEW

For most of the past ten years, the majority of ATMs used worldwide ran under IBM's. However, IBM hasn't issued a major update to the operating system in over six years. Movement in the banking world is now going in two directions: Windows and Linux. NCR, a leading world-wide ATM manufacturer, recently announced an agreement to use Windows XP Embedded in its next generation of personalized ATMs Windows XP Embedded allows OEMs to pick and choose from the thousands of components that make up Windows XP Professional, including integrated multimedia, networking and database management functionality. This makes the use of off-the-shelf facial

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Plants Health monitoring system using Aurduino microcontroller

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Abstract-

Plant wellbeing the board is the science and routine with regards to comprehension and beating the progression of biotic and abiotic factors that limit plants from accomplishing their full hereditary potential as harvests, ornamentals, timber trees, or different employments. Plant observing is a standout amongst the most essential assignments in any farming based condition. In this paper, we talk about the execution of a plant wellbeing checking framework. Which will check some condition parameters like temperature, mugginess and light force that has consequences for plants. What's more, recover the dirt dampness. This data is sent by Arduino Uno dev sheets to the Ubidots IoT (Internet of Things) cloud stage. On the off chance that there are any deviations in the put away sensor esteem, ready message is sent to the client's cell phone.

Index terms - IoT; Wireless Sensors Network, Embedded Processing, ZigBee, Plants Health, Larvae.

I. INTRODUCTION

The Internet of Things (IoT) is an essential wide spreadingtechnology. As of late it is utilized in an assortment of uses like shrewd urban areas [1], wearables [2], brilliant network [3], savvy horticulture [4], and so forth. The sensors arrange is a rudimentary piece of any IoT based brilliant framework [5]. A savvy sensors organize configuration can be acknowledged by considering the topological structure of detecting hubs, surrounding condition varieties, constrained hub assets for vitality and computational power, and so on [6].

An IoT based savvy framework is made out of a specific number of detecting hubs. The decision of number of utilized hubs and their appropriation topology, in the focused on detecting condition, is application subordinate [6]. Each detecting hub is acknowledged by utilizing a fitting arrangement of sensors with an implanted controller. It permits to remotely detect the expected parameters. It is accomplished by means of remote information accumulation, handling and parameters extraction. This procedure is finished by each detecting hub in an occasional or aperiodic mold. In later case, hubs are just practical when asked for and generally stay in the rest mode. The separated parameters from detecting hubs are transmitted, by means of remote or wired interfaces to a base station. The base station transmit this accumulated data to the focal preparing unit which dissects this information and show and store discoveries on the CPU [5, 6].

The focal point of this work is to insightfully utilize the IoT with a savvy blend of Wireless Sensors Network for observing the soundness of plants in a remote product field. In this specific circumstance, an ARM processors based remote sensors arrange is planned and worked to screen plants wellbeing and identify hatchling exercises in a proposed remote yield field. The discoveries of the remote sensors organize are shown and put away on the CPU and are likewise refreshed on the cloud. Thusly, the refreshed rendition of the expected data stays accessible to the concerned people whenever and anyplace. It enables them to opportune connect and fix the concerned articles in the focused on detecting condition.

This work has a place with the space of plant condition checking which has a wide inclusion including different applications like woodland observing [7], horticulture checking [8], creature conduct observing [9], water system framework checking [10], checking of farming biomass quality away [11], huge region trim stock [12], and so on. So as to accomplish a viable framework with an ideal execution a particular framework configuration is required or as a component of the focused on application. It incorporates a suitable decision of remote sensors, detecting system topology, correspondence interfaces and innovations, preparing modules and detecting calculations. It ought to be done thoughtfully so as to accomplish an intriguing tradeoff between framework cost, control utilization and accuracy [5, 6].

II. RELATED WORK

VLSI DESIGN OF DYNAMIC LOGIC BASED SUCCESSIVE FFM

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Abstract- This paper, a high-speed power-efficient VLSI design of a finite field multiplier in GF($2m$) is presented. The proposed design has a serial-in parallel-out Structural design and performs the multiplication operation using a reordered normal basis. The main construction block of the multiplier in dynamic logic to reduce the critical path delay. Reduction in dynamic power consumption is achieved by limiting the contention current between the transistor and pull-down network at the beginning of the estimation phase by employ a control circuit. The semicustom layout of the multiplier was realized in 65-nm CMOS technology. The proposed design methodology can also be used in the design of similar FFM possessing regular Structural designs.

Index Terms—Dynamic logic, elliptic curve cryptography (ECC), finite field arithmetic, reordered normal basis (RNB), serial-in parallel-out (SIPO) finite field multiplier.

I. INTRODUCTION

Efficient computations of finite field arithmetic are largely important in cryptographic applications where field operations are significantly used, namely, elliptic curve cryptography (ECC). The binary extension field GF($2m$) is a closed set of $2m$ elements, meaning that arithmetic operations over the field elements are conducted without leaving the set. Each element of a finite field can be expressed by a bit sequence of length m. A field can be thought of as a vector space spanned by a vector set of m linearly independent elements, called a basis. Choosing the basis by which field elements are represented plays an important role in the efficient Design of finite field operations. A number of bases over finite fields have been proposed in the literature, among which polynomial basis (PB) and normal basis (NB) are primarily used in practice. Although the use of PB is most common in software designs, NB offers a virtually cost-free squaring operation performed by a single cyclic shift over the field element's coordinates, thus making it the better choice for hardware design. Among the set of finite field arithmetic operations, the efficient design of field multiplication is of upmost importance, as field operations of greater complexity (e.g., exponentiation and division) can be performed by the consecutive use of field multiplication.

It is proven that an NB exists for every field in GF($2m$). In general, the multiplication operation in NB can be modelled as a matrix-vector multiplication, where a matrix multiplication is required to be performed for each of the product coordinates. The hardware complexity of the multiplication operation is directly affected by the number of nonzero elements inside the multiplication matrix. This number is referred to as the *complexity of NB* and is denoted by *CN*. For a given m, *CN* varies between the two extreme values of $2m+1$ and $m2$ and is minimal in the case of two subclasses of NB, known as type I and II optimal NBs (ONBs) RNB can effectively simplify the multiplication operation by defining it as a closed-form formula rather than a matrix operation. A fully parallel Structural design would be a natural choice for applications in which speed is of great priority. Additionally, by cryptographic standards, the use of high-order fields ($m > 160$) is recommended to ensure a high level of security. However, considering the fact that a parallel Structural design has an area complexity of $O(m2)$, a large m will result in a big, power greedy design not suitable for resource constrained applications. Contrastingly, a fully serial (sequential) multiplier has an area complexity of $O(m)$, resulting in a significantly smaller structure. Despite their smaller size, sequential multipliers require m clock cycles to complete a full multiplication operation as compared to only one cycle in the case of a fully parallel Structural design. Thus, it is desirable to reduce the multiplication delay of a sequential multiplier to compensate for this shortcoming. In this paper, we present an optimized VLSI design of a serial-in parallel-out (SIPO) RNB multiplier in GF($2m$). The regularity of this Structural design has been previously exploited to construct a high-speed custom-layout multiplier by implementing the main building block of the Structural design in dynamic logic. However, this performance improvement in terms of critical path delay is obtained at the cost of a significant increase in power consumption. To improve the performance of the multiplier by employing a custom-designed dynamic logic circuit that effectively reduces the power dissipation of the dynamic circuit. It is shown that the new design significantly increases the maximum operating frequency compared to its equivalent static CMOS realization, as well as successfully reduces the power consumption to a comparable.

Brain Tumour Detection using Graph Cut Method

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Abstract-

Image segmentation denotes a process of partitioning an image into distinct regions. Clustering methods have been extensively investigated and used among a large variety of segmentation approaches. This process includes image pre-processing, image segmentation, feature extraction and classification technique. This present work proposes a method to detect the tumor regions effectively from the brain MRI scan images. In this paper, Graph Cut Method algorithm to Detect Tumour regions is proposed for medical image segmentation. A new unsupervised MR image segmentation method based on Graph Cut algorithm for the Segmentation is presented. This paper describes a segmentation method consists of two phases. In the first phase, the MRI brain image is acquired from the patient database from which artifacts and noise are removed. In the second phase (MR) image segmentation is to accurately identify the principal tissue structures in these image volumes. MATLAB is used for the study of brain tumor detection from MRI scan images.

Index terms – Graph Cut Algorithm, Image Analysis, Segmentation, Tumour Detection

I. INTRODUCTION

The brain is a delicate, fragile, non-replaceable and elastic mass of tissue. It is a steady place for examples to enter and balance out among one another. A tumor is a mass of tissue that becomes crazy of the typical powers that controls development. Mind Tumor is a gathering of strange cells that develops in side or around the cerebrum. It can straightforwardly wreck all solid mind cells. It can likewise in a roundabout way harm sound cells by swarming different parts of the cerebrum and causing aggravation, mind swelling and weight inside the skull. This paper shown the methodology in section II and Section III showed the simulation results of different input images and section IV shown the conclusion of the paper.

II. METHODOLOGY

A. Image Acquisition

Images of a patient gotten by MRI scan are shown as a variety of pixels and put away in Mat labR2013a. Here, grayscale or force pictures are shown of default estimate 256 x 256. A grayscale picture can be indicated by giving a vast lattice whose sections are numbers between0 and 255, with 0 relating, state, to dark, and 255 to white. A high contrast image can likewise be determined by giving a vast network with whole number passages. The most minimal passage relates to dark, the most astounding in white.

B. PRE-PROCESSING

Noise introduced in the picture can lessen the limit of area developing channel to develop vast districts or may result as a blame edges. At the point when looked with loud pictures, it is typically advantageous to preprocess the picture by utilizing weighted middle channels. Weighted Median (WM) channels have the strength and edge saving ability of the established middle channel. WM channels have a place with the expansive class of nonlinear channels called stack channels. This empowers the utilization of the apparatuses created for the last class in portraying and investigating the conduct and properties of WM channels, for example noise constriction ability. The way that WM channels are limit capacities permits the utilization of neural system preparing techniques to get versatile WM filters

C. Segmentation Using Graph Cut Algorithm

A graph is a conceptual portrayal of a lot of articles, where a few sets of the items are associated by connections. It is a numerical structure and is utilized to demonstrate pair wise relations between articles from a specific gathering. The objective is to portion the primary items out of a picture utilizing a division strategy dependent on chart cuts. A chart based methodology makes utilization of productive arrangements of the maxflow/min cut issue among source and sink hubs in coordinated diagrams. To exploit this we create a s-t-chart as pursues: The arrangement of hubs is equivalent to the arrangement of pixels in the image.
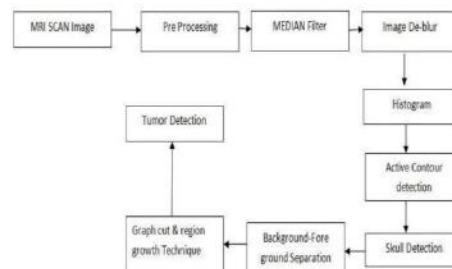

Figure 1: Block Diagram Algorithm.

TOWARDS REFERENCE MODELS FOR REQUIREMENTS TRACEABILITY

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Keywords:

Requirement Traceability; Reference Model;
S-Cube Reference Model;
Service Based Application;
S-Cube Life Cycle;
Service Life Cycle;
S-Cube Framework.

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Abstract

A Reference model in systems, enterprise and software engineering is abstract framework or domain specific ontology consisting of an interlinked set of clearly defined concepts produced by an expert or body of experts in order to encourage clear communication. There are many uses of reference models. Main use of reference model is to create standards for both the objects that inhibit the model and their relationships. By creating the standards, the work of engineers and developers who need to create objects that behave according to the standard is made easier. In this paper we are proposing S-cube model of Quality reference model. Reference models are therefore an abstraction of best practice, condensed from many case studies over an extended period of time, followed by more case studies to refine and evaluate the proposed reference model. There are challenges towards the service-based systems. The network of excellence on software services and systems (S-cube) performs cross –discipline research to develop solutions for those challenges. In this paper we outlined the S-cube reference model life cycle and how is used to know how a service is developed. S-cube knowledge model which is a continuously updated on-line encyclopedia and a reference library. In this paper we are presenting about S-cube framework which is used to align and bring together the involved disciplines and co-existing of services.

1. Introduction

Software testing is one of the important process in Software Development Life Cycle. Testing is a process of executing a program with the intent of finding an error". Requirement traceability is intended to ensure continued alignment between stakeholder requirement and system evolution. To be useful traces must be organized according to modeling some framework. This paper follows an factual approach and final observations demonstrates wide range of traceability models. Traceability inside a model is sometimes called vertical traceability and between different models called as horizontal traceability. There are 4 key processes in product development practices requirement-, change-, characteristic-, and decision management. These are considered as more basis for the development of traceability.

Reference models are prototypical models of some application domain, usually organized according to some underlying basic meta model. The purpose of reference models is to reduce significantly the task of creating application-specific models and systems: the user selects related parts of the reference model, adapts them to their problem, and configures an overall solution from these adapted parts. Since the analysis of a domain can take an enormous effort when started from scratch, the use of reference models has been reported to save up to 80% in development costs for systems in standardized domain. Not surprisingly, reference models have become highly successful in many industries, the best-known example being the SAP approach.

Not every domain is sufficiently standardized to allow for a reference model of the final product – the system to be built. Moreover, approaches like the one followed by SAP are not necessarily supportive of change, especially when this change goes beyond the initially covered domain. However, at least experience on how to get to the product should be reused. This leads to the idea of reference models for capturing the development process itself, not to be confused with prescriptive software process models.

The process of developing reference models is effortful. The traditional normative computer science approach of imposing such models on developers is long known to have failed in most cases. Reference models are therefore an abstraction of best practice, condensed from many case studies over an extended period of time, followed by more case studies to refine and evaluate the proposed reference model. There is nothing provably correct about reference models; they derive their relevance from the slice of practice they cover. Nevertheless, by formalizing a reference model in an appropriate mathematical framework, at least a number of elementary desirable properties can be ensured.

Role of Reference Models

Our interest is the development of reference models for requirements traceability. We define requirements traceability as "the ability to describe and follow the life of a requirement, in both a forward and backward direction, i.e. from its origins, through its development and specification, to its subsequent deployment and use, and through periods of on-going refinement and iteration in any of these phases". The importance of requirements traceability

IoT Based Smart Health Monitoring System

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Abstract-

Web of Things is the new upheaval that isgoing to affect each feature of our lives. Web of Things (IoT)is the new innovation which incorporates the gathering of Sensors,Actuators, processors and other improvement sheets (eg.Raspberry pi, Arduino and so on.,) to gather the information from differentsources relying on area of use, process theacquired information before sending to far off cloud or mobileapplication relying on the requirement[7].The mostpromising utilization of IoT is in the field of human services segment.

In a few nations, individuals still don't approach quality healthfacilities inferable from various obstructions. The physical distancebetween patient and facility is one of the principal reasons. Thispaper examines the use of IoT in medicinal services area and asystem is proposed to screen the ECG of the patient.Inthe proposed framework the Bio signals are gathered from the Bodyof the patient utilizing ECG sensor and after the requiredprocessing utilizing advancement sheets, sent to far off cloudnamed as Think talk, for furtheranalysis by a doctor or other approved individual and furthermore estimated temperature ,stickiness , oxygen levels.Think Speak cloud utilizes Think speak (Message Queuing Telemetry Transport)protocol which is utilized to show ECG, temperature,humidity, oxygen levels esteems and relating diagrams showed.

Index terms -IoT, healthcare, ECG

I. INTRODUCTION

IoT (Internet of Things) is the following change in outlook wheresensors and actuators are associated with one another andexchange the information without human intercession. These days thepenetration of web over each the edge of the globe hasreally opened the new range of answers for nearly everyproblem which is being looked by society. Wellbeing checking ofa tolerant indirectly has turned into a simple and conceivable errand withthe appearance of this technology.The cardiovascular abnormalityis one of the greatest reasons for passings among individuals of allraces around the world particularly on account of seniority individuals.

As indicated by one estimation,By2050, it is normal that theworld populace of age 65 and more established would surpass thepopulation of the world with age of 15 years [3]. By 2030, onein each five US residents would be 65 or more seasoned [3]. By 2060,the European Union populace's offer with 65 years or morewill increment from 17% to 30% [3].Moreover, Economicadvantages would come through diminished physicianandemergency room visits, decrease in the hospitalization andnursing care athome.So to check the ongoing working ofthe heart, inaccessible patient ECG(Electrocardiogram) monitoringsystems are structured by various specialists and creators inliterature. Indoor ECG observing framework [3] has beendeveloped by a few architects to utilize this framework for nontechnicalusers yet the principle downside of this framework was itsrange of activity which was restricted by the Bluetoothtechnology which has the scope of around 10meters.Furthermore, a few frameworks were proposed by theresearchers dependent on web usage yet the exorbitant equipment utilized by them made this framework far from thosepeople who are fiscally not sound [1].Android mobilephonebased framework is additionally created which gets the biomedical sensor information from the committed processor and store thedata to SD card introduced on the portable phone[4]. Be that as it may, the mainproblem with this structure was its inadequacy to imagine thedata in genuine time.so the proposed framework in this paperaddresses every one of the necessities and give condition of craftsmanship solutionto the test of checking continuous ECG of a distantpatient.

This paper is organized in five sections. After this introduction, in Section II, motivation discussed of the paper, Section III about Implementation of the project explained, as well as the novel feature of the proposed method. Finally, Sections IV and V provide the experimentalresults and the conclusions, respectively.

II. MOTIVATION

The ECG checking framework has been proposed in this paper to address the difficulties related with human services area of IoT. With the progression in the innovation particularly in the field of data innovation and registering intensity of processors, it has turned out to be conceivable to use these headways in the space of human services to help senior subjects at homes, competitors, and individuals from varying backgrounds.

Moreover, the genuine inspiration to build up this framework is to spare the time which individuals spend in making a trip to healing facilities and holding up in long

ACCIDENT PREVENTION BY EYE BLINKING SENSOR AND ALCOHOL DETECTOR

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Abstract:

The main objective of this proposed system is to stop drunken and dowry people. Here in this system alcohol sensor and eye blink sensor are used .so whenever the driver starts the vehicle, the alcoholic sensor senses the amount of breathe and generates a signal to Buzzer, GSM and LCD. The output of sensors is given to micro controllers. If the value reaches to an particular level, then automatically it sends SMS through GSM. Buzzer will produce sound and the message was displayed by LCD.

I. INTRODUCTION

The primary point of this proposed framework is to control the mishaps by utilizing liquor and IR sensors .The capacity of an IR transmitter is utilized to transmit the IR beams in our eyes.IR collector is utilized to get the Infrared beams. Assume in the event that an eye is shut, yield of IR beneficiary is high. If an eye is opened, then yield of IR collector is low. Here liquor recognizes the substance and, in the event, that it achieves the settled esteem, it creates a SMS through GSM and signal will deliver sound and it was shown through LCD. The liquor sensor can be utilized to check the substance of liquor devoured by individual. The yield of sensor is corresponding to liquor content. At the point when the liquor particles in air met anode, at that point ethanol consumes into acidic corrosive. In light of that progressively current is delivered. On the off chance that the liquor atoms are progressively, current created is more . Here the yield sensor are in simple nature, it must be changed over into computerized design by utilizing simple to advanced converter of microcontroller .Here the microcontroller controls the entire circuit .the capacity of LCD is to show the message ,where as the GSM sends SMS and ringer produces alert.

II. BASIC MODEL OF THE SYSTEM
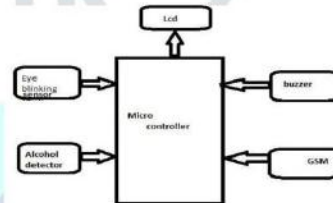
Introduction to the Arduino Board:

Arduino is an open source gadgets dependent on the administrations to use on the equipment and programming, arduino sheets can peruse inputs like a light on a sensor, unique mark on sensor, enacting an engine, turning on a LED, are controlled to the hard product frameworks.
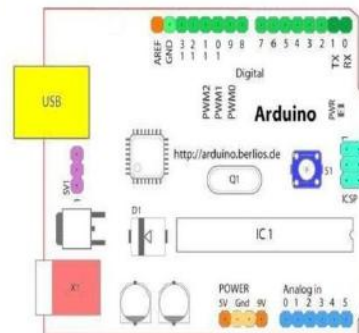
Features on the arduino boards:
- Digital pins
- Analog pins

SMART SECURITY FOR IRRIGATION SYSTEM

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Abstract— *Modernization of the cultivating procedure is one of the critical strides for a nation like India, which needs to import enormous measure of grains and agro items from different nations to take care of the demand of 1.2 billion populaces. One of the real difficulties of the agribusiness is the correct checking of the dirt wellbeing, nature, and modifying the water system and in addition the plant clear as per this perception. Issues concerning horticulture, wide open and agriculturists have been continually preventing improvement. The main answer for these issues is rural modernization. Another situation is giving security from assaults of rodents or creepy crawlies, in fields or grain stores. Modernization in farming is actualized through 'Web of Things' based gadget which is fit for detected data and transmitting it to the client. This gadget can be controlled and checked from remote area to give security to grain stores and agrarian fields.*
Keywords— IoT, WSNs, Sensors, Raspberry Pi

I. INTRODUCTION

Over the previous years data and correspondence innovations have been presented in agribusiness, enhancing sustenance creation and transportation [1]. However the reconciliation of these advancements is not yet utilized for security purposes. The huge test confronting the security in farming is the communication between security gadgets and to give them knowledge to control other electronic gadgets, for example, cameras, repellers and so on to upgrade security in different fields. On the planet, the economy of numerous nations is reliant upon agribusiness. Regardless of financial improvement agribusiness is the foundation of the economy. Agribusiness is the pillar of economy. It adds to the total national output. Farming meets nourishment prerequisites of the general population and produces a few crude materials for enterprises. But since of creature obstruction in rural grounds, there will be enormous loss of yields. Harvest will be absolutely getting annihilated. There will be substantial measure of loss of rancher. To stay away from these money related misfortunes it is vital to shield rural field or ranches from creature.

To beat this issue, in our proposed work we might outline a framework to keep the section of creatures into the ranch. Our fundamental reason for extend is to create restrictive

fencing to the ranch, to maintain a strategic distance from misfortunes because of creatures. These restrictive fencing shield the harvest from harming that by implication increment yield of the product. The create framework won't destructive and damaging to creature and also individuals. In usage and selection of data and correspondence advancements, cost is additionally a main consideration. It is difficult to accomplish trade of data among gadgets and redesigning their usefulness while keeping their cost to a sensible level [2]. This absence of data transmission and information breaking down has been "comprehended" by combination of web of things with as of now accessible security gadgets keeping in mind the end goal to accomplish proficient sustenance safeguarding and efficiency. This exploration is the planning and breaking down of security gadget, considering harms to post collect yield by rodents and grain stores as relevant range. With regards to Smart Security and Monitoring System for Agriculture (S2MSA), we address the test of incorporating Internet of Things with electronic security gadgets and frameworks to enhance the productivity of nourishment conservation in grain stores.

1.1. Scope of Work

1. To design a security system for farm protection
2. Prohibit the entry of animal into the farm.
3. Monitor the field status using camera.
4. Use GSM module for alerting us.
5. Design a system that sounds when animal tries to enter into the farm.
6. In night flash light will focus on that side.

II. LITERATURE SURVEY

An electric fence was utilized as a hindrance to shield a homestead from wild creatures. An electric fence was first utilized as a part of Texas in 1888. Power from a generator utilizing an overshot wheel was to charge the main two wires of a four-four-wire fence [1]. Regularly sun oriented controlled, such fences were utilized broadly in the Panhandle to keep cows from meandering onto farmlands [4]. One noteworthy hindrance of an electric fence is that it may back off crisis administrations from contacting you. This may even outcome in help contacting you after it is past the point of no return. There

Wireless Detection of Landmines by Using GPS & GSM

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Abstract:

This system uses the Global Positioning System (GPS) tracking technology in combination with Global System for Mobile (GSM) technology. An integrated system employing latest tracking techniques using satellite receiver in the form of GPS Modem, integrated with a robotic vehicle can be used to detect the exact location of metal in the field. Then the GSM module transmits the received data to the authorized Mobile user. Main purpose of this project is to detect landmines by using a GPS enabled remotely controlled robot.

Keywords: Microcontroller, GSM Module, GPS module, Sensors

I.INTRODUCTION

Expectedly, Wireless - controlled robots use RF circuits, which have the downsides of restricted working reach, constrained recurrence run and the constrained control. Utilization of a cell phone for mechanical control can beat these confinements. It gives the benefit of strong control, working extent as huge as the inclusion territory of the specialist co-op, no obstruction with different controllers and up to twelve controls. In spite of the fact that the appearance and the abilities of robots differ inconceivably, all robots share the highlights of a mechanical, mobile structure under some type of control. The Control of robot includes three unmistakable stages as follows:1.Perception 2. Preparing 3. Activity. For the most part, the preceptors are sensors mounted on the robot, handling is finished by the on-board microcontroller or processor, and the undertaking is performed utilizing engines or with some different actuators. Robot is intended to recognize landmines in a remotely controlled manner. Client can explore the robot and find the landmines. Areas of distinguished landmines can likewise be gotten to by cell phones through SMS. The robot can be constrained by the created programming, which will program the parallel port and speak with the robot by means of radio signs. Created programming program utilizes catch and mouse control to explore the robot. The created programming will demonstrate the ongoing area of the robot and the area is transmitted. At the point when the robot distinguishes a landmine it sends the flag to the GSM framework as the sort of metal recognized and their area in, for example, Latitude, Longitude, the mechanical model.

II. LITERATURE SURVEY

There were a few writings which alluded before beginning the work to take a smart thought and to check the conceivable outcomes of getting the required outcomes. Jadhav. 2013) have appeared in his examination about the car limitation framework utilizing GPS and GSM administrations. The framework licenses confinement of the vehicle and transmitting the situation to the landmine at the getting station. This framework is additionally given GSM to get an instant message about the where about of the mine.This writing has some shortcoming as specialist in a few spots where there is no arrangement of GSM systems it is troublesome for correspondence likewise did not make reference to progressively required data of the diverse sort of metals utilized for the mine. This is gotten by a GSM modem in the gadget and handled by the Spartan processor and the processorsends order to a GPS module in the gadget. The GPS module reacts with arrange's situation of the mine. This position is sent to the station as a SMS to the client with date, time, scope and longitude positions. This writing has some shortcoming when comprise air masses in the sky GPS will stop the work and don't send message and decide the area. Likewise some quality, utilizing a FPGA controlled framework we can without much of a stretch track the dig which guarantees wellbeing for the troops in the military vehicles and furthermore bunches of employments for open transport framework. This writing has some shortcoming as the postponed correspondence systems to send message recorded when the mishap and has some quality can catch the surges of information given by their accelerometers, compasses, and GPS sensors to give a convenient black box that distinguishes impact mishaps. The main writing study has done about the mishap location and send message utilizing GPS and GSM modems. The second examination is planning the metal location sensor, which checks if the mishap has been caused because of the impact of mines. Third writing to configuration station alert framework in case of impact. Fourthly, ponder planning mine following framework utilizing GPS. At

Implementation Based on Dual Background & Modelling for detection of moving shadows

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Abstract—Moving object images in video sequence are obtained by subtracting the background images with the current frame images, background extraction is an important process. Firstly, in this paper, the background and moving objects are extracted by using the improved Gaussian mixture background modeling. Then, the previous moving object and moving object of frame difference are effectively integrated into a moving foreground object we are interested in. Finally, we extract the background region under the moving foreground object. Due to the influence of illumination, the foreground objects contain moving shadows, which affect the performance of moving object detection. This paper proposes a simple and effective method which uses the difference of texture feature and color information in gray foreground image and gray background image to remove the shadow of the foreground object, and then detect the real foreground object.

Keywords—Gaussian mixture background models; color information; texture feature; shadow detection

I.   INTRODUCTION

State-of-the-art video monitoring techniques are becoming more relevant in real life given rising living standards, growing awareness of personal possession security, and progress in machine vision. Detection of moving targets is particularly important because people are typically interested in identifying or tracking such targets. Shadows exist as long as light sources are present for indoor or outdoor video monitoring. Locating the shadow can improve accuracy of moving target detection and behavior analysis. By monitoring the environment in real time, an intelligent video monitoring system can collect various information, such as the number of visitors, queues, and behavior analysis. This type of data forms the foundation for making the correct monitoring management decisions in real time. Existing methods for detecting moving targets typically utilize background modeling or inter-frame difference, where the detected moving region contains the real target and its shadow. Shadow detection has been the subject of extensive research in recent years. Shadow detection methods can be classified into two categories: shape-based shadow detection and frequency spectrum-based shadow detection.

The shape-based method detects the shadow by using a prior geometrical message on the target, the scenario, and the position of the light source. An obvious limitation is the requirement for a prior geometrical message. Compared with the shape-based scheme, the frequency spectrum-based method is more practical and popular since the message on the frequency spectrum between the target and shadowed region usually depends solely on illumination, and is nearly independent of light source position and object shape. This paper proposes a method for detecting a target using dual background models. A novel algorithm is developed that detects moving shadows using the color information (*YUV* space) and texture information.

II.   TARGET DETECTION USING DUAL MODELS

Target detection refers to effective target segmentation by extracting the target from the video sequence. Target detection is critical for post analysis such as target classification, target tracking, and understanding behavior. Target tracking is also the foundation for video monitoring and video conference. In real-world scenarios, the background is not completely static due to the influence of illumination and weather. As a result, foreground and background movement may occur meanwhile in the video, making target detection challenging. Target detection is a complex task that attracts much attention from the computer vision and image processing community.

A.   *Background Subtraction*

As a prevalent moving target detection method, the background subtraction algorithm [1][2][3] utilizes historical image data to model the background in complex scenarios. The algorithm performs a difference operation on the current image frame and the background model to determine if it is the background or foreground by using the similarity criterion. Background modeling is the key aspect of the background subtraction method; it should accurately fit the model distribution of the background and dynamically adapt to changes of the complex scenario inreal time. Furthermore, the algorithm is expected to effectively distinguish between background and foreground. It can be difficult to achieve both abilities and researchers usually try to find a balance for optimal detection results. Various methods have been proposed to model the background: the Gaussian model by Wren, the Gaussian mixture model by Zivkovic., the kernel estimation method by Elgammal, and the eigen method by Shlens. These modeling methods can achieve a detailed shape of the target, but by describing static and dynamic

Real-time emotion recognition from facial images using Raspberry Pi

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Abstract— *Now a days growing of technology and understanding of a human expressions . emotion.Emotion can understand by test,vocal,verbal and facial expressions.Facial expression enrich source of communicative human behaviour activeness or dull mood ,it can be verified and emotion. Facial expression recognition is challenging problem upto now because of many region,moreover,it consists of three sub challenging face detection, facial featureextraction and expression classification.Automatic face images is an analysis of to identify human -machine interaction and interesting topic important application in the field of information and machine-human interaction driven animation ,it is a successful expression finding in the field of science and technology emotion expression recognition . Most of the system are able to recognize basic prototype emotion like Happy,Sad,Surprise, Anger ,fear and disgust.This general expression are detected using certain varitions of facial expression like broadening of mouth ,closing of eyes,twitching of noise,etc..*

Applying the extraction of fast robudt facial image exyraction based on applying classified filter to the image filters to the image. The proposed method implements facial image capture from the web camera using three steps face detection, features extraction and classification classifier of emotions. The proposed method uses raspberry pi for implementing emotions recognition.

Keywords— **Feature extraction, Active shape Model, Adaboost classifier, Raspberry pi**

I. INTRODUCTION

Now a days robot-human is one of the upcoming technology ,each and every machine is to be provided with a computerised vision interaction is growing in present . robot identifies emotions of a human ,it can human behaviour better ,thus efficiency of a task developing ,it can serves as a vital measurement tool for behavioural science and social intelligent software can be improved which can useful for machine.Emotions are strong feelings which are govern by surrounding play a great perception ,planning ,cognition,reasoning and many more,which leads to emotion recognition a big research field.Emotion recognition can be done by text ,vocal , communication of a verbal ,land expressions of face .FACIAL EXPRESSION brow means to synchronised a matter rising and nodding,clarify conclusion and intensity winking of a embles and with the help of a mouth read

,signal comprehension ,or dis agreement and convey messages above cognitive , pshycological and effective states [1],[2] . Therefore ,attaing machine understanding of facial behaviour would be useful for classified as streams as computing technology,medicine,and security in applications like ambient interface empathetic tutoring ,interactive gaming ,research sadness with uncofottable pain ,health support appliances ,monitoring of stress fatigue and deception detection.

Because of this practical importance [3],[4] and theoretical interest on the author of medicine cognant [5],[6],machine capturing provides a information with science and medical in computer vision and AI .Two main steams with present research spontaneity analysis of expressions of face images consider facial effect {emotion}actions and the facial detect strength [7]-10] .This steams stem directly from we need a whole new appraoach to the job accurate in the field of research in pshychology [11] : judge of a symbol .the content of a is facts from the ctrime has been increasing expression,such as affect or personality,while the aim than to describe the layer of the behaviour that shown ,such as facial moment or component of a face emotions .Thus a frown can be judged as "anger" in message -judgement approach and a facial moment that lowers and pulls the eyebrows closer together in a sign-judgement approach.While message judgement is all about interpretation ,sign judgement is agonostic ,independent from any interpretation attempt, leaving the interference about the conveyed message to higher order decision making .facial emotions are researching now a days adher to the message judgement stream and present to prototype capture a image of small emotion of a face such as emotions are of six types proposed by EKMAN [7]-[9],[12].

There are six types of facial expressions fom images of a face and expressions of a sequences is far considerable approach of a novel implemented even to present (e.g,[13]-[16]). Interest of assumptions status of a picture in robot ,man picture effect involves pshyocological and cognitive status if impression [17], pain [18],[19], and fatigue [20].

Facial emotion recognitaion well of a 2d pictures studied filed but real time lack of process that analyse features of qualityless pictues in the web camera .mainly in the to do something [22]-[24] front based view image of the faces. More work need to be done on non-frontal images with ill conditions as in real time these global condition are not uniform.

IoT using Smart Energy Meter for Home

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ABSTRACT- This paper is portrayed to gauge vitality utilization in the house and produce its bill consequently utilizing IOT correspondence. This can help in decreasing vitality utilization in house as the proprietor is consistently being informed about the quantity of units that are devoured. It objective is to create bill naturally by checking the power unit's utilization in a house and in an approach to decrease the difficult work. The figuring's are performed consequently and the bill is refreshed on the web by utilizing a system of Internet of Things. The bill sum can be checked by the proprietor anyplace all inclusive. Structure and execution of task is for the most part dependent on Node MCU controller utilizing IOT idea. In power transmission human association isn't required. Purchaser pays the power bill for the expended power. On the off chance that on the off chance that buyer neglects to pay the bill on time, power transmission can consequently killed. Likewise control burglary can be identified if any altering happens it will send the data to the server just as it will cut the power naturally. WIFI plays out the IOT task where and through which the data is sent to the Web server.

Keywords: - Energy meter, IoT

1. INTRODUCTION

The web of thing enables item to be detected and controlled remotely crosswise over existing system framework, making open doors for more straightforward coordination between the physical world and PC based frameworks, and bringing about enhanced proficiency, precision and monetary advantage. The expanding age needs engaged devices by remote innovation which incorporates Bluetooth, Radio Frequency Identification, Embedded sensors and some more. In that IOT innovation has developed from its start and now directly generally utilizing it. The power assumes an imperative job in our life. Presently a-days as the buyers are expanding quickly it turned out to be difficult to deal with the power necessities. Without power it's difficult to endure and furthermore it is imperative to spare the power

misfortune. As the age is builds the purchaser's necessities likewise expanding so as per it the innovation enhancement is required. So we built up the framework with quicker and enhanced innovation for example IOT. The power additionally contains a few issues like power robbery. Power burglary is a measure wrongdoing and it additionally specifically influences the economy of our nation. Transmission, age and dispersion of power incorporate the loss of power. To maintain a strategic distance from the misfortunes we have to screen the influence utilization and misfortunes, so we can productively use the created influence. Meter hardening is a piece of intensity burglary and furthermore unlawful wrongdoing which we can limit. Charging is a procedure as a rule the human administrator goes to each shopper's home at that point giving charge it will require parcel of investment. To determine these issues we created framework on the base of IOT vitality meter perusing. IOT based vitality meter perusing comprises of three sections: Controller, Theft discovery and WIFI part. Controller part assumes a noteworthy job in the framework. Where all the data can send through this controller to the next piece of the framework and it likewise stores the data in it. WIFI part performs IOT activity as per the Arduino controller. The vitality meter associated with robbery recognition part if any temper happens it will send the data to the organization just as it will make programmed move by making power off.

II. EXISTING METHOD

The present system only provides feedback to the customer at the end of the month that how much power is consumed in the form of bill. The consumer has no way to track their energy usage on a more immediate basis. The consumers are growing exponentially fast and load on power providing divisions is rapidly rising. In the existing system meter tampering can be done easily and it's one of the major drawbacks for an energy crisis.

International Conference

A Novel Watchdog Timer for Real-Time Intensive Applications

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Abstract. Integrated systems utilized in security-critical applications require the very best accuracy. Externic monitoring watches are utilized in that structure naturally manages to get over failures associated with operating time. Most vacant exterior watch watches use extra circuits are regulate rest interlude and supply just partial appearance in terms of the performance. A document explains planning, style of enhanced arrangement of watchdog timer which utilized in security-demanding use. Various errors finding method are constructing watchdog, adding to its strength. A process is fairly common and not to observe procedure of a few relative method. This enables a planning is simply tailored to diverse use as dropping common price of a system. The efficiency of planned surveillance device to notice error is initially deliberate by examine the simulation outcome.

Keywords: FPGA, Watch Dog Timer (WDT), Hardware Description Language (HDL), Input and Output Interface, Verilog and VHDL.

1 Introduction

For applications where framework disappointment can cause injury, most extreme unwavering quality is required. Such frameworks must have adaptation to non-critical failure components that consider the sudden to guarantee satisfactory operational security. These frameworks ought to have the option to recuperate from a mishap without human help. This adaptation to internal failure components recognize when a deficiency happens, to cure the issue and breaking point framework personal time [1]. One approach to accomplish adaptation to non-critical failure is to execute framework repetition. The utilization of numerous duplicates of basic framework parts improves the dependability of the whole framework [2]. Notwithstanding, this improved unwavering quality of the framework is acquired gratitude to an expanded equipment and programming intricacy relying upon the sort of design utilized. By building up a shortcoming lenient framework, the guard dog is one of the most financially savvy strategies for identifying and dealing with blunders identified with uptime [3]. A guard dog clock (WDT) is an equipment subsystem that screens framework activity and makes certain move if a blunder is identified [4]. In the event that the WDT lapses, this is an auxiliary sign of an issue with the watched framework [5]. On the off chance that the