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GSM CONTROLLED 3 PHASE MOTOR

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Abstract - This Project help in agricultural development of India. Due to frequent power cut and abnormal voltage condition leads to maintenance of motor by using this system we provide the protection from over voltage, over current, three phase detection & dry-run helps to off motor during dry condition. In this system we used ATMEGA 328 microcontroller for checking all conditions of motor. After checking the conditions of motor controller sends signal to GSM modem which reports to consumer via message. Consumer can check all the conditions and on/off the motor by sending text message by registered mobile number. In abnormal condition of motor consumer receives information about fault and motor gets off to prevent accidents. We use GSM modem because they don't need extra networking equipment's. Due to this system easily access the motor and prevent from any abnormal condition.

***Key Words*:** *GSM, SMS, AT mega, LCD*

INTRODUCTION

The Three phase motor control using GSM are mainly designed to farmers. Using GSM we control the motor from any place for benefit to farmers. Due to this farmers maintain the correct timing of water and gives protection to the motor. In the agriculture sector problems occurred to the motor and this damage the motor. For preventing the motor use this system in that voltage, current, three phase detection & dry run protection provided. Due to this system user on/off the motor from any place it helps to saving the time and required less man power. For on/off the motor user need to send the message to the system. If any abnormal condition is occurred motor automatically switch off & system gives information about fault to the user threw message. For switch on/off the motor need to send the message like /motor on/, /motor off/. And suppose any abnormal condition is occurred system gives information like dry run fault is occur then motor

1. is automatically off and user get a message like" Motor is off due to dry run" as well as system gives information about over voltage, over current, single phasing fault
2. India is basically an agriculture country, and all its source depends upon the agriculture output. With the drastic development of agriculture in India, many automatic technologies have been introduced into agriculture field and production. As a survey, we can see that the total rainfall in a particular area may be either insufficient or ill-timed. In order to get maximum yield, it is essential to supply the optimum quantity of water and maintain the correct timings of water supply. So this is possible only through a symmetric irrigation system by collecting water during the periods of excess rainfall and releasing it to the crop as and when it is needed. The irrigation is the science of planning and designing an efficient, low cost, economic irrigation system tailored to fit natural conditions. By construction of the proper and good distribution system, the crop field may be increased because of controlled water supply.

LITERATURE SURVEY:

1) **AUTHOR**: PROF. SWAMI L.B, MS. RAJGURU VIDYA CHANDRAKANT

NAME: THREE PHASE MOTOR CONTROL USING GSM

COMMENT: In this system we used ATMEGA 328 microcontroller for checking all

conditions of motor. After checking the conditions of motor controller sends signal to GSM modem which reports to consumer via message. Consumer can check all the conditions and on/off the motor by sending text message by registered mobile number. In abnormal condition of motor consumer receives information about fault and motor gets off to prevent accidents. We use GSM modem because they don't need extra networking equipments. Due to this system easily access the motor and prevent from any abnormal condition.

2) **AUTHOR**: Rikshith U. Uchil, Vivek George, Yogish, Ganapathi Sharma

NAME : Three Phase Motor Controlling Using GSM
COMMENT:
This automatic control is for controlling the motor from a far off place, look over its operating conditions; get feedback from the motor itself. So here our target is to regulate the motor from the distant place by mobile SMS and also get feedback by SMS while it's in ON or OFF condition. This provides the event of mobile phones as an overseas control application for the induction motor pump which is employed in agriculture. In India because of the frequent power cuts and abnormal voltage conditions in India, it is necessary to distribute water efficiently to the fields during normal conditions. This can be followed by exchanging the data between the user phone and GSM within the sort of messages. This technique is developed with Micro controller which is connected to the GSM and also the motor. This Micro controller includes the protection against over-current, dry running and single phasing. In this project, it's expected that this application provides easy accessibility to the motor to an excellent extent.

3) **AUTHOR**: Wani Suraj R, Ghaywat Vivek V, Naik Akshay D, Mandlik Sachin B,

NAME : "IVR System for three phase motor protection, Control and Alert system using GSM",
COMMENT: A new approach is proposed for designing the protection and control unit of the three phase motor using the

IVR systems. The main objective is to control the motor from aremote place using the mobile DTMF tone and also to receive the motor status feedback through SMS. GSM is found to be the most convenient, cost efficient network to be used for the transmission of the feedback signals at the motor end along with the generation of control signal by mobile DTMF. This control signal and the feedback SMS is transmitted through the GSM modem. Thus, this paper serves as an introduction to a new control technique of a three phase motor which can be effectively used for industrial purposes along with providing an SMS based alert system

METHODOLOGY:

The three phase motor control using GSM is developed to protection for motor. System is ready when three phases is available. Microcontroller monitors the all condition of the motor and control the operation of the starter based on the motor condition. When all condition is good the motor will on and gives the feedback to user. If voltage decreases to its rated value or when there is no flow of water in the pipe or water level insufficient or single phase is occur the motor will automatically off and the problem is intimated to the farmers through messages from GSM. The GSM is connected to the controller user can control the starter by sending the message when needed or when abnormal condition exist. The message send to the GSM controller perform the proper operation based on the motor condition and given task. The signals sent to the controller to switch on/off the motor through the starter the relays. The relays is controlled by the microcontroller.

OBJECTIVE:

1. To control i.e. to ON/OFF control of 3 phase motor pump, connected to this system from anywhere.
2. To develop a cost effective solution that will provide remote control of induction.
3. GSM based motor monitoring and speed control.

LITRATURE REVIEW

BLOCK DIAGRAM:

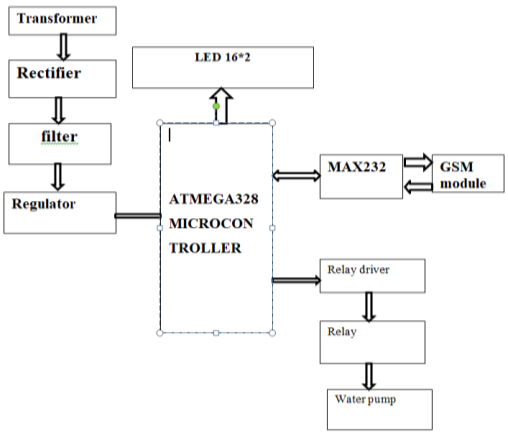

Fig 1 Block Diagram

WORKING:

In this system we use the GSM module to communicate the user to the system. For controlling the motor ATMEGA 328 microcontroller are used and relay use to on/off the motor. Controller always the monitor the RYB phase when all phase is available system gives the message to user as “System is ready”. For switch on the motor send a message as “/motor on/” after motor is in on condition microcontroller check the all conditions when there is no abnormal condition system gives a feedback “All condition is good motor is on”. For switch off the motor send the message “/motor off/” motor is suddenly off and gives the feedback as “Motor is off”. Microcontroller always checking the condition of motor if any abnormal condition is occur as over voltage, over current, single phasing & dry run microcontroller operates the relay and motor automatically switch off and GSM gives the message about the fault condition. If dry run fault occur motor

Automatically switch off and gives feedback as “Motor is off due to dry run” as well as over voltage, over current, phase offline this facility also provided. The relay is controlled by microcontroller. As we provide protection against the abnormal conditions of motor.

HARDWARE REQUIRMENT

1. ATMEGA328 MICROCONTROLLER
2. TRANSFORMER
3. RECTIFIER FILTER
4. REGULATOR
5. BUZZER
6. LED 16*2
7. MAX232
8. GSM MODULE
9. RELAY

SIMULATION:

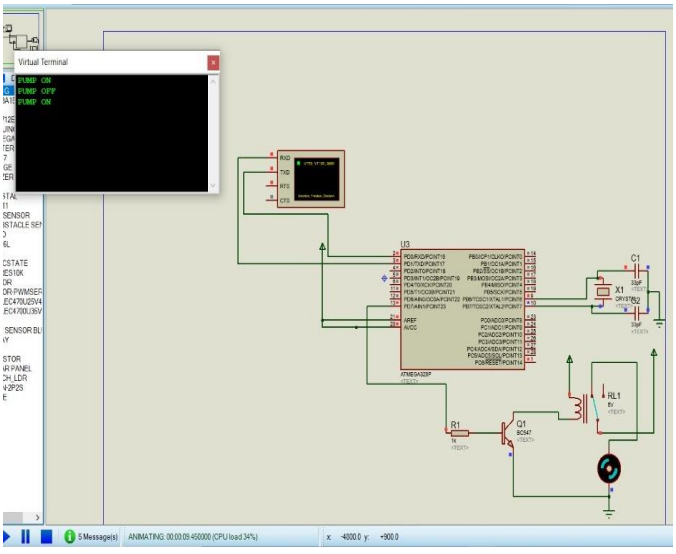

Fig: system Simulation

FLOW CHART:

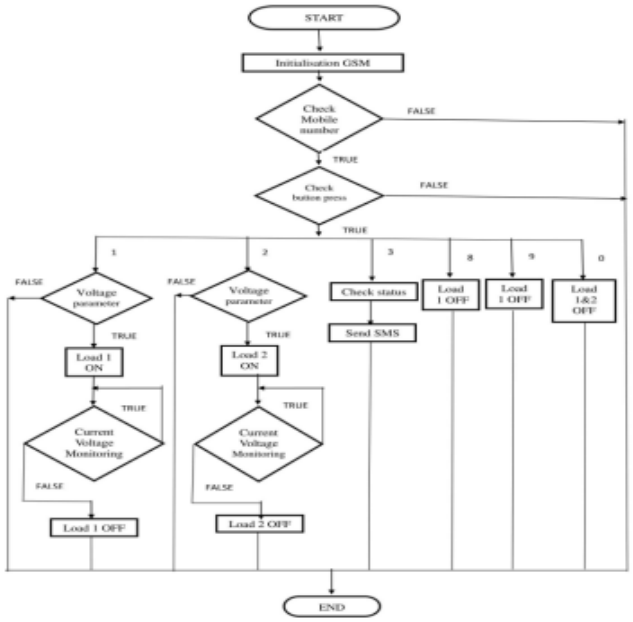

Fig 2 Flow Chart

ALGORITHM

1) Start.
2) Initiate.
3) Set threshold.
4) Get sensed parameters from all sensors.
5) Compare threshold values with real time values.
6) Display message on LCD.
7) Send SMS using GSM Module & control barrier gate as per condition.
8) Stop.

ADVANTAGES:

- It will save farmers time and money.
- Farmers can control land moisture from a remote location.
- Increases productivity.
- Farmers can invest time in other vital tasks.
- It is very easy to design and implement.

FUTURE SCOPE:

This system mainly developed to the farmers, but it also use in industry area. In the industrial area for three phases motor protection gives through this system. This is best example of the embedded system. Any automation is provided through this system. In that microcontroller use to control the overall operations and as per our requirement we change the controller operation. The motor is switch on/off to give a missed call. This helps to reduce the labor cost and maintain the proper timing of water. We get the all condition of the motor from any place. It also very useful to industry area to control the motors.

RESULT:

Fig: Output SMS

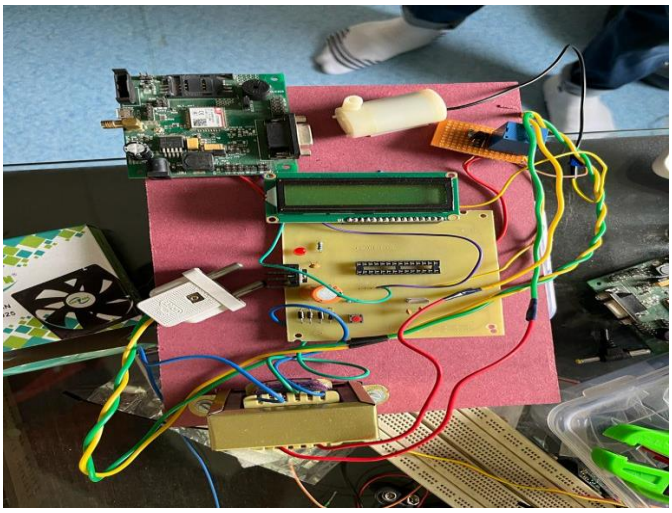

Fig: Hardware setup

CONCLUSION:

The system ensures protection against over voltage, over current, single phasing & dry run. It also provides the intimation of the abnormal condition and motor automatically switch off. This helps to uniform distribution of water at regular intervals, reduction in labor cost, prevention of unwanted water spillage, It helps to save the water and gives the feedback of the all operations this is the major advantages of this system. The use of mobile phone is common and easy to understood for farmers. The pump will located away from their homes due to this by using mobile phone farmer control the motor from home. As this is very helpful to the farmer.

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