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Water Pump Monitoring and Controlling Using Arduino

Ms.Tejashree Anilkumar Sawashe [1], Ms. Ayesha Ajam Mirshikari [2], Ms. Sameena Muhammadhusain Mulla [3] Prof. Mrs. Shital R. Ghorpade[4]
U. G. Students[1], Asst. professor[4], SIT COE Yadrav, Shivaji University, Maharashtra, India.
tejashreesawashe@gmail.com[1], **ayesham492**@gmail.com[2], msameena52@gmail.com[3]

ABSTRACT

Nowadays, the remote Agriculture Automation turns out to be more and more significant and appealing. It improves the value of our lives by automating various agriculture appliances or instruments. This project describes GSM (Global System Messaging) based monitoring and controlling submersible pump using arduino for android mobile phones. Arduino is a latest programming platform for developing mobile applications for Android-based smart phones. The Android Mobile Phone Platform becomes more and more popular among software developers, because of its powerful capabilities and open architecture. It is a fantastic platform for the real world interface control, as it offers an ample of resources and already incorporates a lot of sensors.Arduino makes simple programming as compare to PIC microcontroller and it reduces the size of program code. The Arduino aims to make programming enjoyable and accessible to novices.

Keywords: GSM, Arduino, Agriculture Automation, Android Mobile Phone, Short Messaging Service (SMS), CT & PT Sens

INTRODUCTION

India is agriculture country. The farmers suffering from many difficulties. So our project is easier way for farmer to supply water to the farm by saving electricity. There are various systems are developed for agriculture automation for increasing the production of crop, quality of crops, for proper utilization of available resources. This system can implement for saving electricity and water resources.

In India where 60-70% economies depends on agriculture practices for the better productivity. This is whole automated system with self decision making capability. The decision making part will be carried out by Arduino AT mega 328 microcontroller. In summer season due to high temperature the water level of well or river highly decreases. Therefore in that situation submersible pump runs without water. So that there is wastage of electricity and overuse of electricity. Due to that electricity bill increasese.Therefore financial problem will occur. To reduce these problems we have to implement this project.

In our project first we have to check motor running with water or without water by using output of CT & PT sensor. If motor consumes more current then motor runs without water and if motor consumes less current then it runs without water. From the output of

CT & PT sensor we find out condition of motor. If the motor runs without water then message send to user that 'motor runs without water' through GSM network. At last message to be send by user to working station to 'Turn off Motor'.Inthis project we have to use GSM SIM 900 module for the communication purpose.

ACTIVE APPEARANCE MODEL METHODS OVERVIEW & RESULTS

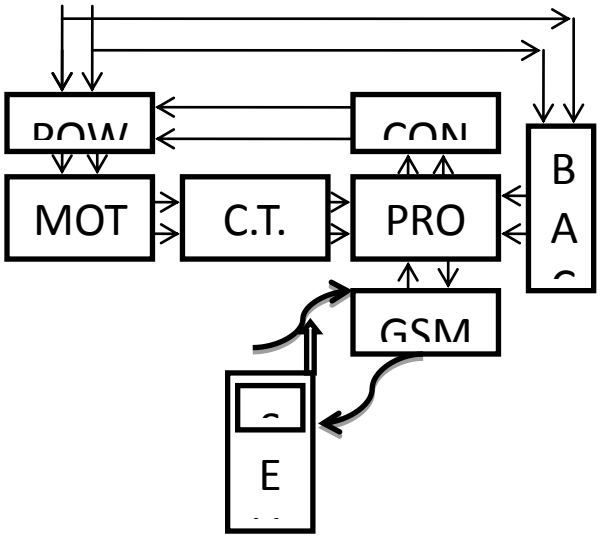
1.The circuit also monitors the water in the well/bore well so that if the water level goes very low it switches off the main motor to prevent dry run and also to prevent damage to the motor.

2. This system operates by sending and receiving SMS. Apart from this, it will prevent the motors from single phasing, dry run, overload etc. If the said problems are existing, the remote farmer will be getting message regarding problem details and automatically it will make the motor OFF

3. . The system also consists of a GSM modem through which the farmer can easily be notified about the critical conditions occurring during irrigation process.

OBJECTIVE OF PROPOSED WORK

- The primary objective of this is to increase the production with effective utilization of available resources without damaging the soil.
- To design cost effective automated system, this will helps the farmers with less man power.



DESCREPTION OF BLOCK DIAGRAM

This project consists of GSM Sim 900 module to configure the system via SMS and also the status will be informed to farmer via GSM modem. By using CT and PT sensor the system will check the status of water resource and motor which is used to pump the water. According to output sensors Arduino microcontroller check that motor runs with water or without water. Arduino microcontroller is the heart of system. All controlling action will carry out by this system. This system will causes in saving electricity.

In this projects controller has to just provide the information of the volume of water and condition of motor to the user. The farmer can configure this system from anywhere and anytime through GSM. All interfaces are done by using Arduino AT mega 328 micro controller. User communicates with controller by using GSM. So as send message to microcontroller, and receive message from controller .Also sensors will check the condition of motor and level of water resources. If due to any reason motor runs without water then it will turn off by sending message through GSM.

ADVANTAGES:-

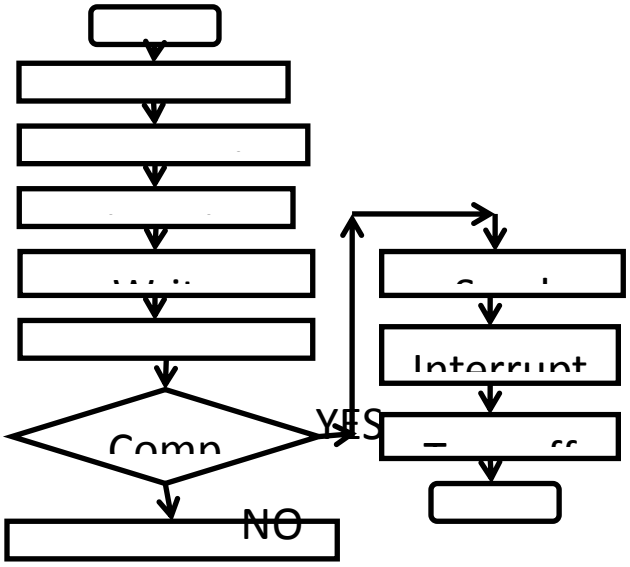
- It is two way communication system.
- It give proper feedback to system.
- If there is any problem it give instantaneous message to user.

e.g. it checks power factor of motor,

it detect whether motor is running with water or without.

- We can easily turn on /off motor using cell phone
- High realibility, efficiency .
- Large lifetime.
- High accuracy.
- Lifetime achievement.

FLOW CHART



APPLICATIONS:-

In Agriculture:-

This system is mainly beneficial to the farmers. It is usable in agriculture land. It is useful to reduce consumption of electricity as well as usable to reduce overuse of electricity. It gives proper feedback to user. It gives high production of crop without damaging of soil.

In municipal:-

Also this system usable to municipal for the distribution of water supply. It gives proper feedback to operator such as motor runs with water or without water.

CONCLUSION

From that seminar we have conclude that today's system is only one way communication system . The idea which we are going to implement in today's system is a two way communication system . It should predict that whether there is problem occurred at working system or not. It checks that motor runs with water or without water with the help of C.T. and P.T. sensor.

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