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# Timer Auto switch to Control Three Phase Motor

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**ABSTRACT:** In the field of agriculture, use of proper method of irrigation is important and it is well known that irrigation is very efficient. In the conventional irrigation system, the farmer has to keep watch on irrigation timetable, which is different for different crops. The project makes the irrigation automated. Setting a time in auto switch for ON and OFF of the pump will increase the production of crop and the simple circuitry makes these project a low cost product, which can be bought even by a poor farmer. This project is best suited for places where water has to be used in limited quantity. Also, other countries can afford this simple and low cost solution for irrigation and obtain good yield on Crops. The heart of the project is the PIC microcontroller. EPROM is used to store the time set by user. Keyboard is used to set the time. This system is expand with PIC Microcontroller which in connected to the GSM, LCD and keyboard for setting time for ON and OFF of starter .Status of motor is also shared with user in form of message by GSM module. This is carried out by exchanging the information between the user phone and GSM in the form of messages and by using GSM module. Phases are active or not are displayed on LCD screen which is link with pic microcontroller.

**KEYWORDS:** PIC microcontroller, EPROM, GSM, LCD, Keyboard.

### I.INTRODUCTION

The main occupation of India is agriculture. Most important part of agriculture is irrigation. Technologies are developed to make farming as simple as possible or effort less. The total rainfall in a particular area is undesirable. In order to get the maximum income, it is necessary to supply the optimum quantity of water, and it's also essential to maintain correct timing of water. This is possible only through a systematic irrigation system- releasing into crop when it's needed and when it's not, collecting water at that time the desirable amount of available water. In the modern Irrigation the science of planning and organization, designing an efficient, low-cost, economic both are needed for irrigation system tailored to fit natural conditions. If arrange the every individual system with proper way, the yield of crop may be increased because of controlled water supply. For that purpose the requirement of wireless network deployment is increase in the market.Such system provided hardware and software design. It will be possible for user to use way of SMS to monitor. The conditions of their farmland and schedule the water needs of crops. It automatically control watering and set control operational condition. This will help minimize overwatering and crop production cost. Agriculture is basically done using motor pump systems in which water is pumped into fields after regular interval of time without any feedback of water level in water source. When the motor is monitoring water level and the water level



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must be sufficient then the pic controller gives the permit to start the motor and if it is insufficient then its send the message by using GSM module.

## II.LITERATURE REVIEW

The backbone of our Indian economy is agriculture nearly about 20% of the farmers are depends upon the electric water pump for the irrigation purposed and the electric water pumps demands the electricity. The research conducted by K V S RAM CHANDRA MURTHY (2009) proves that there will be large demands for electrical energy for agriculture purpose in India and also in India many states the electrical utilities company are facing the shortage power of electricity which go towards the unrest in the farmer. The idea of three phase motor control by using GSM and remote control systems have been in discussion for quite a long time. The technologies used GSM to develop remote control for three phases this smart system have also evolved, i.e. from IVR to DTMFs to now the most popular thing Feedback or SMS. Each idea seems to be similar but is slightly different at its core and our proposed work on exception of farmer. After the GSM field, finding how its more beneficial in our lives, this is our original plan for designing a programmable auto switch system which has provision for farmer participation and getting more profit into crop. At hardware level, the programmable auto switch with uln2003a, a micro-controller and GSM module for transmission of data.

And also the phase detection of three phase motor control system has been in discussion for quite long time. This work exploits the future possibilities, key technologies and application that are likely to drive our vision is RTC. Real Cock Time (RTC) is used to set particular time as per farmer requirement .The power schedule is different and not comfortable for farmer .For the solution of that problem will we used RTC module in three phase motor control using GSM. As per the farmer requirement he will set time through keyboard. That time is store in microcontroller and RTC start at set time, its read time countdown manner.

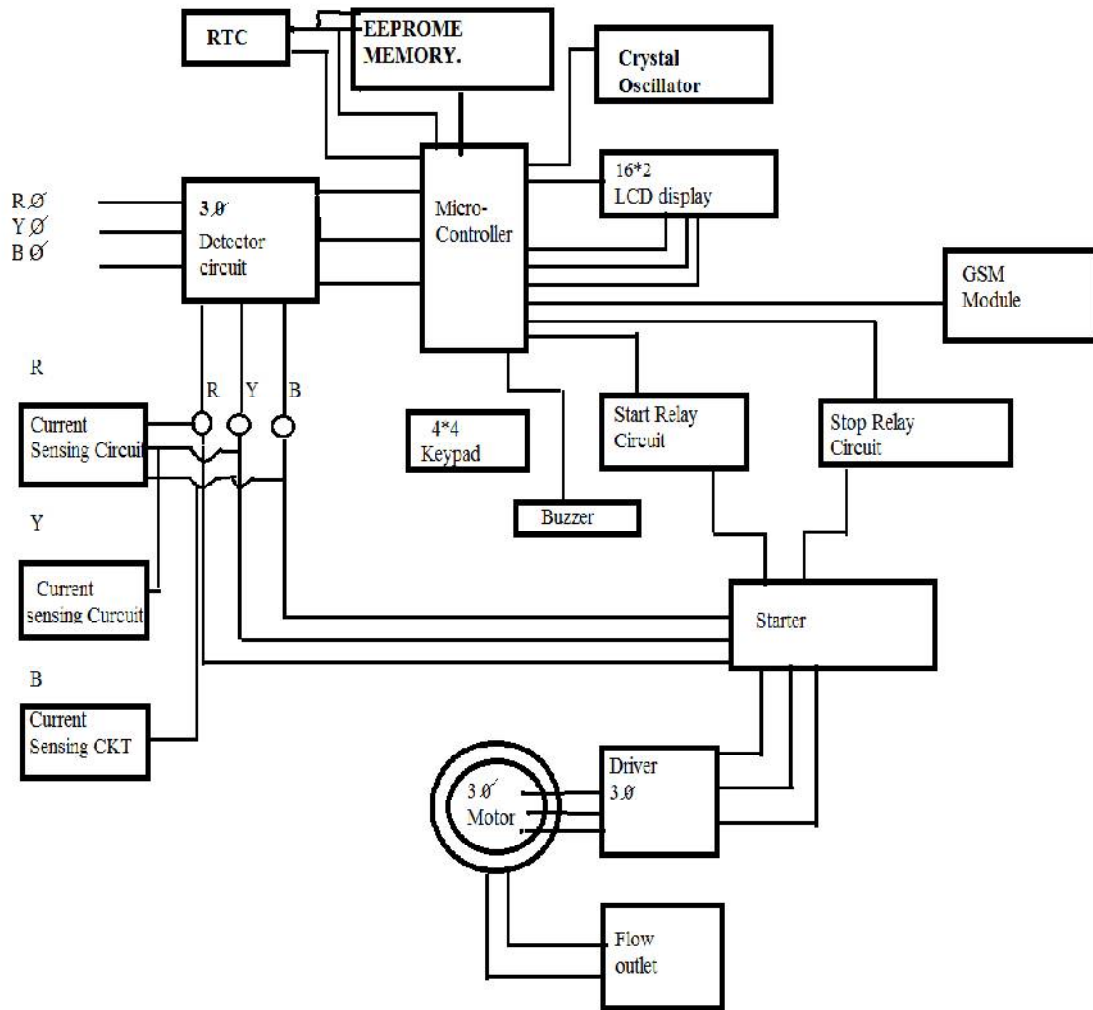
## III.SYSTEM MODEL AND ASSUMPTIONS

This is carried out by exchanging the information between the three phase detector will detect the phase and gives output to microcontroller. If any one of the phase is not active then it will be displayed on LCD and microcontroller will not send any instruction to start relay circuit. If three phase are active then microcontroller will send instruction to start relay circuit,

stop relay circuit and also the electric motor and motor will be start or stop as per particular time set with the help of keypad. The method used to carry out this project is the principle of serial communication in co-operation with microcontroller systems. Mobile phone having GSM modem, which is the latest technology used for communication between the mobile and the microcontroller device System which will work send the status of motor either it is on or off. When the modem receives any message from the microcontroller will read the message and gives the status of motor that is because of the microcontroller inside the system is program, if it is correct then it will start performing the desired task. Starting Time stop time is set by keypad which will on and off motor as per particular time set. EPROM is used to stored time means if time is set of two hours after one hour if power is cut then when power will come remaining time will be continued to run motor.

## IV. EFFICIENT COMMUNICATION

Figure 1 shows the block diagram of auto switch. Three phases are first detected by 3phase detector circuit .output of the three phase detector circuit is applied to PIC microcontroller, If all three phases will active then microcontroller will check either any time is set by user, then it will give instruction to start relay to start the starter of three phase motor for a period set by user .start will automatically off as a period of time set by user is finish. GSM module is interfaced with PIC microcontroller which gives information about status of motori.e. phases are active or not and on and off of motor .keypad is used to set time .EEPROM is used to stored time and it isinterfaced with microcontroller. 16\*2 display shows three phases are active or not



**Fig 1: Block diagram of Auto switch**

### V. ALGORITHM

An algorithm is an effective method that can be expressed within a finite amount of space and time and in a well-defined formula language for calculating a function. starting from initial state and initial input, the instructions describe a computation that, when executed, proceeds through a finite number of well-defined successive states, eventually producing output and terminating at a final ending state

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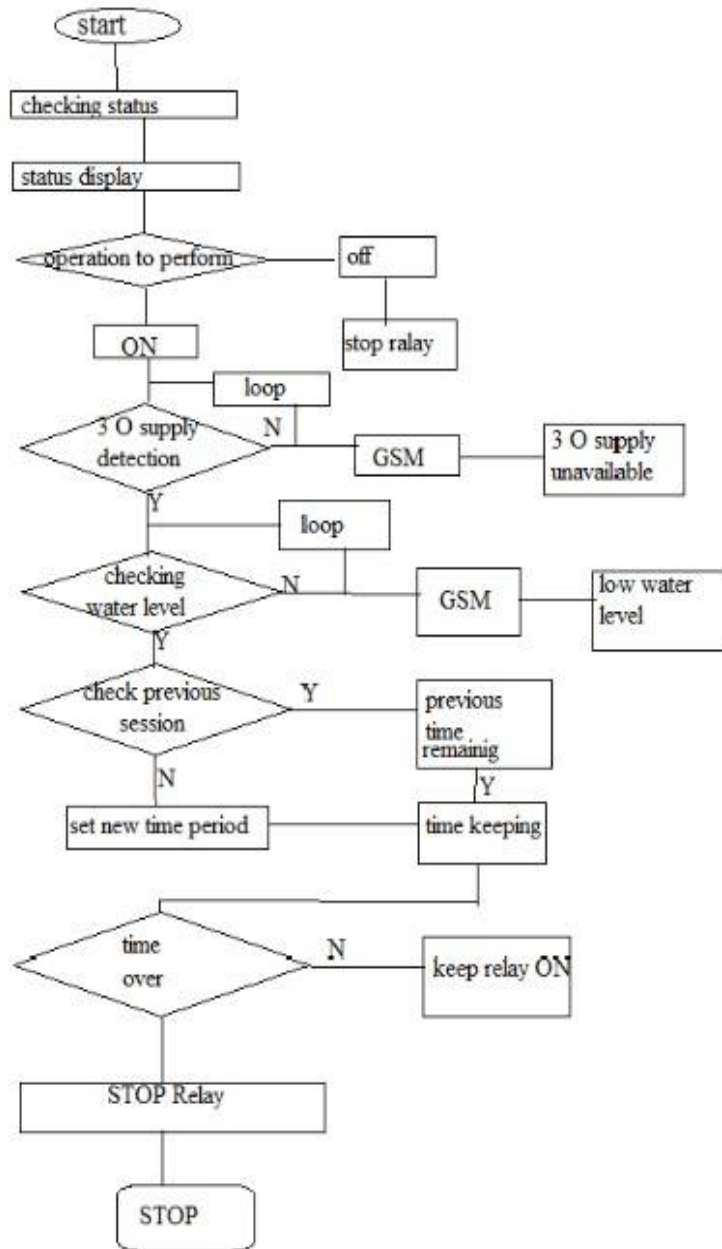


Fig 2: Algorithm

## VI. SECURITY

The main objective of our system is to make a farmers life easier. By using this system a farmer can do his water irrigation work anytime and from anywhere without worrying about certain power cuts, voltage fluctuation and lack of water is pumped. Some benefits are getting to farmer by installing this system are as follows:-

1) Increases production-operation using gsm mode a farmer can do other work at the same time. by operating irrigation using mobile communication.

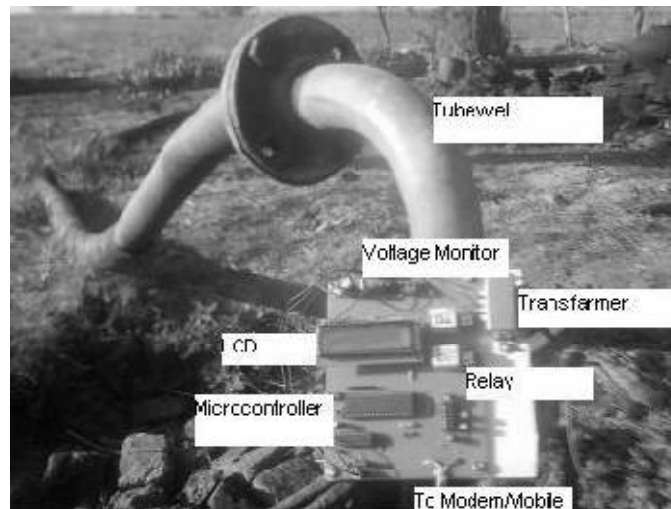
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- 2) Proper use of electricity-ON and OFF operation are automatically controlled , i.e, required water has been given to the crop,the motor automatically switched off and it saves the power energy.
- 3) Decrease in wastage of water-Due to the automatically operation of motor ,it saves the lack of water.



**Fig 3:** Propose System of Programmable Autoswitch

## VII. RESULT AND DISCUSSION

At present this system can provide an information about the phase detection, water level ,electric supply but in future we can control various agriculture appliances and also we can monitor environmental and agricultural parameters such as temperature humidity ,etc. at the field by enhancing the system.

## VIII. CONCLUSION

Thus the developed system enhances the water distribution in the field optimally. The system first convinces protection from overloads, overheating and phase imbalances against the motor. In normal conditions are re-established, it also provides automated restarting. Avoidance of unwanted water spillage, uniformly allocation of water at regular intervals period of time, reduction in plod expense, if any fault is occurs in motor it will be reduce or eliminate faster like that message send to client its major advantage of this system. The use of mobile phone has become more common among the farmers and hence used. Whose farms or pump sets are located far away from their homes due to capability of remote control using mobile phone and intimation about any abnormal conditions? The system proves to be great boon to farmers

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