

KRUSHI RAKSHAK-GSM based field Watcher: A Review

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Abstract: - As we are moving into more up to date and more up to date innovation in the realm of mechanization and building nearly everything is being computerized. We live in this present reality where everything can be controlled and worked consequently, however there are still a couple of essential segments in our nation where computerization has not been received or not been put to an undeniable use, maybe due to a few reasons one such reason is expense. One such field is agriculture which has been one of the essential occupations of man subsequent to ahead of schedule civic establishments and even today, manual intercessions in cultivating are unavoidable. Fitting natural conditions are important for ideal plant development, enhanced product yields, and proficient utilization of water and different assets. Analyzing the information obtaining procedure of the power conditions, soil conditions and different climatic parameters that oversees plant development permits data to be gathered at high recurrence with no work necessities

Keywords – GSM (Global system for mobile communication), Bird shoo away technology, ultrasonic rodent control, Theft control, Microcontroller, ANN (Artificial Neural Network), Rodent silent siren and sensors.

I. INTRODUCTION

For optimum plant growth, improved crop yield and efficient use of water appropriate environmental conditions are needed. KRUSHI RAKSHAK has been designed using microcontroller as main controlling unit which gives the requirements of basic switching on and off of motors (pumpset), fencing, protection against bird's rodents and other wild animals. In numerous provincial zones in India there is shortage of power and water. Because of this issue farmer's life gets influenced as he is not ready to give adequate water to his yields in the farming field. Because of the variations in the power supply the costlier machineries and other related types of gear might get harmed because of the over voltage or under voltages or because of the phase change over's i.e. 3 phase to 1 phase. Indeed, even there will be unevenness in power supply i.e. there will be no booked time for the power supply they might give it either in day time or in evenings for the most part practice is to give 3 phase supply in evening times. However, farmers house may be extremely distant from is agrarian field so he require go evening times to his field to switch ON the pump set and he have to stay there to water the harvests. Aside from these issues because of the substantial downpour farmers harvests might get harmed because of downpour water and water being supplied even by pump sets which would have not been OFF even while raining likewise because of the long

separation between farmers home and farming fields. Farmer's harvests and his hardware's likewise get harmed because of the creatures and cheats in view of absence of security. To beat all these afore mentioned issues the proposed system called as "KRISHI RAKSHAK (GSM BASED FIELD WATCHER) AUTOMATION FOR AGRICULTURE FIELD A FARMER FRIEND will help our farmer to get great yield and profitability in the agribusiness. Aside from this system it will likewise help in protection of water and power.

II. BLOCK DIAGRAM

The block diagram of the proposed project is as shown in fig.1, the main controlling unit is the microcontroller which gathers the data from the different sensors and it takes necessary action to the respective input given by the sensors. GSM module is used to have communication in between the farmer and the controlling unit, as it uses GSM the system can be operated globally. Power availability is being checked and reminded using the ANN (Artificial Neural Network). The motor on off control is being carried out using GSM; it also uses ultrasonic high frequency oscillations to avoid the rodents from entering the field as it causes disturbance and irritation to them. The high frequency vibrator is to drive the birds away from the field, if there is a network failure there will be an alarm giving indication of network failure.

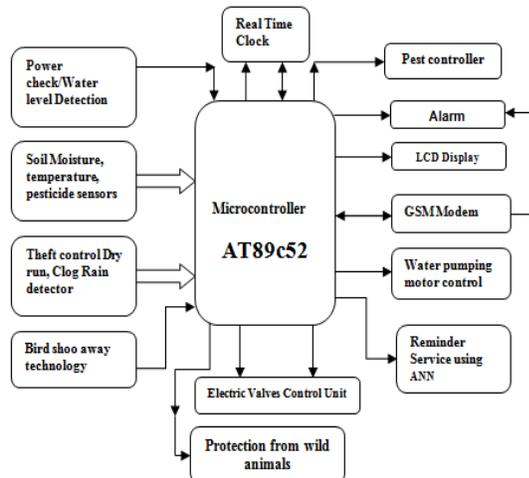


Fig.1: Block Diagram of the Proposed Project

III. METHODOLOGY

In this undertaking microcontroller is utilized as a principle controlling unit of this system which is the heart of the system. Every last gadget in this system is associated with the microcontroller which has full control over every one of the gadgets. Every one of the controls are being customized into the microcontroller according to the necessity of the undertaking. The correspondence with this system is empowered utilizing the GSM modem which is interfaced to the microcontroller. As we have utilized GSM modem this system can be worked all around (i.e. through any part of the world whenever). The principal fundamental employment of the system is to ceaselessly screen the approaching power supply line which is food to the pump set motor. Taking a case that there will be no force supply in the horticulture field, however our system will be on the battery reinforcement and consistently screens the supply line. As the force supply is accessible it sends a SMS to farmer's cellular telephone illuminating about the status of the force supply i.e. Force IS AVAILABLE. After that farmer can switch ON his motor pump set by simply sending SMS to the system as MOTOR ON. At that point if there is power supply disappointment this system sends SMS to the farmer cell telephone as POWER SUPPLY IS NOT AVAILABLE. So by this component farmer will have the capacity to get the status of force supply in his horticulture field and remote exchanging of his pump set through his cell telephone at whatever point required. The remotely exchanging ON and OFF of the pump set motor by associating and disengaging the AC supply to it is accomplished through the transfer as appeared in the piece chart. As the controller gets the SMS as MOTOR ON or MOTOR OFF it gives a sensible 1 or 0 sign to the hand-off driver circuit which thus switches

ON or OFF the hand-off with the goal that power supply to the motor will be associated or disengaged. Here and there because of the no ground water, pump set might keep running in the dry run condition. Because of these conditions the pump set might damage or its effectiveness and working life might be diminished. So to evade this and ensure the pump set we are giving water stream sensor which will be set at the spout of the pump set where water is let out. So this sensor offers us to screen the water some assistance with flowing out of the pump set and if there is no water leaving the pump set means this system close downs the pump set and advises the agriculturist about this example so he can make the further move. This secures the pump set and even to moderate the power. At the point when there will be rain we don't require pump set to be ON as downpour water is all that anyone could need for watering system. Be that as it may, it hard for the farmer to switch OFF the pump set in that overwhelming rain and even the separation he have to go to his farming field might likewise be progressively or even he may not be accessible in that area. So to keep away from this, our system is outfitted with a downpour sensor. As it begins raining, this system consequently closes down the pump set and every one of the valves will be shut so that just rain water will be utilized for yields. The downpour sensor utilized is shrewd it can sense even the level of downpour fall so that for little sprinkling precipitation it doesn't get actuated. By utilizing this component we can monitor both water and power. Our system is even furnished with a fire sensor. In the event that there is any flame mischance in the agribusiness documented means it demonstrates the farmer and closest fire quenching station with complete location of the farming field. So we can counteract yields being harmed because of the flame. The whole using so as to farm field is secured fencing security. This is given to counteract robbery of the pump sets or whatever other hardware in the agribusiness recorded furthermore to spare the yields being wrecked because of creatures. This security system is planned such a path, to the point that, a little voltage will be gone through the wall and associated with the controller. In the event that people or any creatures attempt to break this wall implies there will be no voltage encouraged back to controller and after that controller sends the SMS to the farmer cellular telephone demonstrating that some person or creature is broken the security and made unapproved passage into their farming field. So by this data agriculturist will have the capacity to make further move.

IV. FEATURES

- ❖ In this undertaking microcontroller is utilized as a principle controlling unit of this system which is the heart of the system. Every last gadget in this system is associated with the microcontroller which has full control over every one of the gadgets. Every one of the controls are being customized into the microcontroller according to the necessity of the undertaking. The correspondence with this system is empowered utilizing the GSM modem which is interfaced to the microcontroller. As we have utilized GSM modem this system can be worked all around (i.e. through any part of the world whenever).
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V. INNOVATION

As night happens, which is recognized by the light sensor and the siren is worked by producing the diverse recurrence tones to evade rodents, Bird shoo away innovation utilized utilizing vibrator and a

reflector innovation, an update administration utilizing ANN systems, a proposal box for the choice of yields, turn of products relying upon the zone and the dirt test outcomes.

Furthermore the client needs to give the data to the gadget of kind of product he is developing, in view of this data the system will continue reminding the agriculturist about the moves to be made relying upon the yield like giving the compost, water and pesticides and so on at specific timings. The principle goal of this task is to outline a straightforward, simple to introduce, GSM and Microcontroller based circuit to:

- ❖ Monitor the force supply and demonstrate when the force has come and when the power has gone. So that the motors can be remotely controlled by agriculturists utilizing their cell telephone by simply sending the SMS.
- ❖ Actuate the hardware valves of particular segment as per the dirt dampness that are consistently altered and controlled to upgrade them to accomplish greatest plant development and yield.
- ❖ It is furnished with a ultrasonic high recurrence vibrator which makes bothering the flying creatures and rodents to push them away
- ❖ Switch off the pump set motor consequently when it begins down-pouring and there is no ground water. By this element we can spare the harvests by over water and even monitor water and power.
- ❖ Provide the security to the pump set motor by checking dry run, the pump set motor will be consequently exchanged off if dry run.
- ❖ Provide the complete fencing security to the horticulture field to ensure their products and their costlier pump set motor furthermore other gear's from the creatures and cheats.
- ❖ This system is going to work 24x7 gave battery reinforcement of complete one day to work notwithstanding when there is no force supply. By this, the security system and force observing system will dependably be working so that there will dependably be correspondence with the system and agriculturist.

VI. SOCIAL RELEVANCE

- ❖ As on date there is no item giving this much components on a GSM based motor controller.
- ❖ The agriculturists think that its helpful to have a GSM control as they can switch on and off amid at whatever time of the day without being available at the site.

- ❖ The necessities of essential exchanging on and off, fencing, security against winged creatures and rodents are exceptionally helpful.

VII. MARKET ANALYSIS

- ❖ The significant components of this venture are the remote control of motor, fencing, and electronic valve actuators, feathered creature and rodents repellent innovation.
- ❖ These system operations are effectively controllable and beneficial for farmers who are staying far from their homestead land and makes controlling of motor simple whenever of the day.
- ❖ The clients for this task are agriculturists and agro apparatuses fabricating organization who might forward for huge scale producing.

VIII. CONCLUSION

The features added with the main functionality of pump control will optimize the module usability. The other features added are optional and could be customized. The farmer's usage of mobile for the better productivity is enhanced through the features of today's necessity. For future scope of expansion the fertilizer selection, the soil tested for multiple crops, organic farming insects control could be added. Master control of the device with the additional backups could be worked in conjunction with IOT. Next level of expansion could involve ANN for soil and water level testing parameters.

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