**AUTOMATIC WATER LEVELING SYSTEM TO CROPS**

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**MOTIVATION**

In India where agriculture plays an important part in shaping up the economy and the climate conditions lead to lack of rains water scarcity. The farmers working in the farm lands are solely dependent on the rains and bore wells for irrigation of the land. Even if the form land has a water-pump, manual intervention by farmer is required to turn the pump on/off whenever needed. The aim of our project is to minimize this manual intervention by the farmer. This project will serve the following purposes: 1) As there is no un-planned usage of water is saved from being wasted. 2)The irrigation is the only when there is not enough moisture in the soil and the sensors decides when should the pump be turned on/off, saves a lot time for the farmers. This also gives much needed rest to the farmers, as they don’t have to go and turn the pump on/off manually.

**OBJECTIVE**

**To develop a prototype of the product that includes the following Technologies:**

* Field crop monitoring system is to monitor the farmland by stay in the house itself.
* To maintain the water level in the farmland by using water level sensor.This sensor measures the water content in the farmlands.And also while the flood is coming we can maintain the water levels.Because,Nowdays the crops like paddy are getting spoiled in the floods.It is great loss to farmer.By this system,we can overcome this problem.
* Controlling the motors by mobile phone to obtain the moisture level.

**FIELD CROP MONITORING SYSTEM**

In this project we are using the level sensor,it is used to maintain the water level in the farm lands.For example,if we take paddy,average requirement for paddy,average requirement for paddy is 110mm and 2-3cm water level.If the water level required more than this 2-3cm level the paddy become spoil and waste.While in flood also many paddy becoming spoiled.For this,by using level sensor we can move the water to the safe area like tank,well,etc...By this we can avoid wasting of water and come over spoiling of crops like paddy,wheat,maize etc.

The humidity sensor is used for knowing the weather conditions,this is used for removing the water in the land and make dry at the farm land in rainy seasons.While the rain is coming the land become wet.That removed water can be safed in the tank,well.This is used for spoiling crops in the farmland.

The moisture sensor is used to identify whether the farm land is wet or dry .If the land become dry,by using mobile phone farmers and also the water is saved.motor control system automatically in the house itself we ON/OFF the motor.It gives water to the farm land.It saves the time to the farmers and also the water is saved.

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**MOTOR CONTROL USING MOBILE PHONE**

In the existing system farmers have to travel to fields often at odd hours just to switch on/off the motor due to erratic power supply. Existing aids like the auto starters are unreliable and incapable of communicating the operating state of motor, to the farmers, especially when a farmer has more than one motor pump set; he has to run around to make sure that all the motor pumps are working when the power is available. At times, motor pumps are left running for longer than what is necessary because of the effort involved in switching OFF the motor. This leads to wastage of both electricity and water

To overcome the drawbacks of existing system like high cost, difficult in maintenance and more wired connection, we introduce a new system wireless connection and a new design of motor control using Mobile. In proposed system the irrigation will take place when there will be intense requirement of water. Irrigation system uses valves to turn irrigation ON and OFF. These valves may be easily automated by using controllers. Automating farm or nursery irrigation allows farmers to apply the right amount of water at the right time, regardless of the availability of labour to turn valves ON and OFF.

**BLOCK DIAGRAM**

POWER SUPPLY

MOTOR

HUMIDITY SENSOR

INTEL GALILEO GEN 2

TMPERATURE SENSOR

MOISTURE SENSOR

LEVEL SENSOR

**DESIGN APPROACH AND TASK PLANNING**

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| **Hardware/Software Design** | Write a test program to sense the water level with temperature and moisture content  Write a complete program to obtain the data and transfer it to Intel Galileo-Gen2 |
| **Control Subsystem Design** | Interfacing and programming Wireless module connected to control system  (Intel Galileo Gen2) |
| **Testing** | Test the functionality of the control system(Intel Galileo Gen2) |
| **Sensors** | To detect the temperature ,water level and moisture content of the field |

Our project helps to save the water from wasting due to over flow and also if the level of the water exceeds in the field which may destroy the crops the will be absorbed and stored in the tanks using motors.In here we are using the moisture sensor to obtain the moisture level, if there is rain then it indicates the motor using mobile phone to remove the excess water from the field and store it in the tanks

In case if the temperature is very dry which is indicated by means of the temperature sensor then the plants are watered automatically. The Overall idea of our project will be a big boost for the water management in the agricultural fields.

**CONCLUSION**

This method will be a great advantage for the farmers to protect the crops which may give them high yield. This prototype utilizes low cost/economic components.Since earlier days farmer is supposed to visit their agricultural land and check the moisture content of soil manually. It allows the user to monitor and maintain the moisture remotely irrespective of time. It is really an effective and economic way to reduce human effort and water wastage in agriculture land. This irrigation control system using Intel Galileo board can help farmer in many ways through the use of humidity, automatic and manual modes of operation. Apart from agricultural fields, this system can be used in lawns, roof gardens, home gardens and public gardens. The system has a huge demand and future scope too. It allows a lot of development within it and leads to the standard and useful system which can be used vary widely in agricultural field.