Application of WSN in Agriculture Water Management and Irrigation Automatically.

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Abstract : India is very largest country in this world and population of india is much more. In india many people depend on agriculture, because in india agriculture is very important. India world 2nd largest agriculture activity done, but in india there are many problem are interrupt in agriculture. Water is main issue for agriculture because in india weather is not supportive. In india all farmers are depend on natural water and rain water And this is not available easily. In Irrigation, water is main issue for agriculture. In here we can use the some wireless sensor network and improve the water level management, because sensor network are very helpful for water saving for irrigation and agriculture. Sensor network and other agriculture technique are very helpful for to store and use the natural rain water and increase the production of crop. In india 65 % people work in agriculture so this is very important for our country.

Index term – WSN, Agriculture, water management , Irrigation automatically.

I. INTRODUCTION

In India, water is the main issue for agriculture and irrigation. India is very big country and in India 65-70 % people are work in agriculture. There are all farmers depends on agriculture. In India agriculture is very important but all are not use the best technology. All are use very old technology for agriculture. All farmers are very low maintain the irrigation system and almost huge amount of natural water are waste in many problems and universal lack of good facilities are among the some factors are responsible. Due to some unused reasons of water the natural ground water level is very decreasing day by day and lack of natural rains. In India growing research and experiment in agriculture field and this is the good significance for India because in agriculture India developed good new technology and new ideas. In this day irrigation system water is provided to root zone of plants drop by drop. So for this reason very huge amount of water is saving. Today a large number of technology are developed the farm facilities in this country. Like wireless sensor network, field sensor, remote sensor, crop simulation model, geographical information system.

The major problems faced by Indian farmers are….

In India very less amount of rain fall due to pollution and its very large amount of area is dry. There are some states in which there are very large amount of area is dry. These states are Rajasthan, Madhya Pradesh, Andhra Pradesh, Karnataka, etc. All crop are failure in some part of our country due to lack of water due to rain and due to floods and one big issue is low quality of seeds are available in market. So production of crop is very less amount and this is also the waste of time, money, work and other sources. In India the other main problem is all Indian farmers are used very old technology and poor knowledge for new technology in which can help them to improve the quality of seeds, irrigation, proper handling of their crops. The other one the main problem is some areas are face problem of water nature. These are acidity water, salinity water, see water, etc. Another one problems are lack of facilities. In hilly and rocky areas, water for irrigation is too costly for all farmers because drilling of bore wells is very costly and not easy for poor farmers.

The sensor network technology can help the farmers in different ways:

Water conservation measures: Water is a very important resource and due to some reasons it become even important to take measure for its conservation. There are many different ways to conserve the water. These are building bunds, planting trees to stop the water, strip cropping, crop rotation, planting of grasses for stabilizing bunds, etc. Using With the help of soil moisture sensor, we conserve the water level with the help of reading taken by sensor and it is very effective method.

Prediction of crop water Requirement: The main requirement for increase the crop production is water. There are some main available source for farming are rain water, soil water , irrigation water , river water…etc. And some other parameter are also important for farming is sun light, rain fall , wind speed , humidity.

Sensors Technology: There are many different sensors are use for different parameters like water level, soil moisture, climate change, pest detection humidity measure, etc.

In present day India present all type of Irrigation system.

Surface Irrigation: It is a very common form of irrigation throughout the world and all are use in many areas for thousands of years. Surface irrigation is also type of flood irrigation in which water distribution is uncontrolled and

waste of water. There are three types of surface irrigation.
(a)Level basin   (b) furrow basin (c) Border strip

Level basin irrigation: Level basin is a type of surface irrigation in which the top end of field is full with water. Where water flow over the whole field. This type of irrigation is use in our country and in this irrigation a huge amount of water is waste.

Fig 1. Level basin irrigation

Furrow basin irrigation:- furrow basin is a type of surface irrigation in which it use for production of vegetables. It is better than level basin because it have many advantages , it use less water than level basin. It always save the water because all plants are no direct contact with water as some plant production is very sensitive to full water. In this irrigation make plant to get water in its only root zone. So water is save in very more quantity.

Fig 2. Furrow basin irrigation

Border strip irrigation: border strip irrigation is a type of irrigation in which land form into a strip line which is levelled across the narrow dimension. And during irrigation water is poured at the upper end of the border strip. It is very complicated irrigation method. It is suitable for all crops like wheat, barley, fodder, etc.

Fig 3. Border strip irrigation

Control of Irrigation Automatically by using Wireless Sensor Network

Micro irrigation method: micro irrigation method is recently developed in Indian agriculture. This method save large amount of water and increase the crop production.

There are two types of micro irrigation. (a) Drip irrigation (b) Sprinkler irrigation.

Drip irrigation: Drip irrigation is a type of micro irrigation in which it is a very an efficient method and it is always use hot tropical condition. It is very use irrigation method for all, because it allow water to drip slowly to the root of plants through pipes , valves and tubing…etc. its work done with the help of narrow tubes in which water are directly deliver in the root of plant. The main advantages of drip irrigation is no any problems over watering then the production of crop is much more and this is very useful for all farmer.

Fig 4. Drip irrigation

Sprinkler irrigation: Sprinkler irrigation is a type of micro irrigation in which water is deliver with the help pressurized pipe network to nozzles of sprinkler which spray water into the air. It is a type of artificial rain. The main components of sprinkler irrigation is water source, pressure pump is pressurize the water and pipe is distributed the water in the air and over all field. The sprinkler sprays the water over the ground and valves to control the water flow.

(d) It is the very best method and suitable for all.

Fig 5. Sprinkler irrigation

Advantages of micro irrigation:

(a) It saves water due to possibility of using salt line water.

(b) Efficient and welfare use of fertilizers.

(c) Installation is very easy.

II. Conclusion

Using the sensor network technology we can prove beneficial for the farm. This will help them to take right decision at right time. Which will result is saving their time , labour & money and the production of crop is very much more in less time.

III. REFERENCES

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