

ARM (Aquatic Resource Management)

Team “AMEYA”

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IDENTIFICATION AND JUSTIFICATION OF PROBLEM:

Water is concerned as major problem over the world.Firstly we've encountered this water problem from farmers.They're probably away from water sources and are unable to get sufficient water to their crops due to over usage of water by those who were living nearby. We've collected information regarding this water issue and understood that this problem is not only faced by farmers but by everyone who has no access to water.The justification of this problem can be given by providing every area with equal amount of water from that actually provided.

VILLAGE/ STUDY AREA:

Venugopalapuram from Avanigadda mandal Krishna district and Pulipadu from Gurazala mandal Guntur district Andhra Pradesh. These are some of the areas in AP which generally receive less rainfall and very few measures are taken to save the limited water that is available due to lack of proper awareness.

DESCRIPTION OF PROBLEMS:

The fast growing India is unable to meet the water needs of all the villages and thus the available water is either insufficient to the actual needs or we may have inequality over the distribution of water by means of ground water resources, rivers, municipal water supply...etc. There were many reasons behind this inequality such as lack of proper awareness, poverty, hierarchical usage etc but most of the villages are being affected by this. This problem can be solved only when all those areas were supplied by water in an equal manner.

DESCRIPTION OF INNOVATIVE SOLUTION:

Government is taking measures to provide water to villages in required amounts but due to lack of awareness it is not being used to it's extent. As mentioned earlier only highland areas get more water than the lowland areas. In order to overcome this problem we can use advancement of IOT in agriculture and also Real time systems. We want to direct the canal water into a pipe which is built using many valves inside it and the water flows through this pipe passing through each valve. Using this we can supply water to every village in an equal manner. Valves regulate the water flow using measurement sensors. These measurement sensors will detect the amount of water that is to be

provided and will control the valve whether to be opened or closed. Let us assume that we have 5 villages that are connected to same canal and we've connected canal to the pipe. Pipe consists of 2 valves at each village one is for outflow of water to the respective village and the other valve is for the next village. First all valves are closed and when the water reaches the first sensor it activates the outlet valve and required water will pass through it and gets stored in 1st village. With the completion of water passage by the help of sensor the 1st outlet valve is closed and 1st interconnected valve gets opened giving a way to the 2nd village outflow and this process continues till all the villages are provided with water. We should remember that during this process the succeeding interconnected valves and the opening valves are all closed.

DESCRIPTION OF TECHNOLOGY:

Effective water management involves supply of water according to real requirement and thus measuring water is very essential in water management system. There are many such techniques so our only aim is to automatize the working of valves this can be done by hall effect water flow sensors using raspberry pie. Till now many Indian states like Maharashtra and Madhya Pradesh have already started using pipes for water supply all we need to do is to use this existed one's and upgrade them by adding valves and sensors to it. Firstly, the sensor sits in the line of water flow and contains a pin wheel sensor to measure how much water has moved through it. There is an integrated magnetic hall effect sensor that outputs an electric pulse with every revolution. By counting the pulses from the output of sensor we can easily calculate the water flow rate(in cusecs). We have to calculate the number of pulses to the required litres and set the value to the sensor. We can now interface the flow sensor with Raspberry Pi in which the reading is in the form of pulse. The count of pulse gets increased or decreased based on the water flow. The count is large if the flow speed is faster and less if the speed is slower.

TARGET BENEFICIARY GROUP:

Water is indispensable to human life. Though plentiful, it is limited and global demand for fresh water is growing rapidly due to population growth. Farmers are the one's who will get highly benefitted in this as they will get more access to water. In the land where they previously got 10 bags of yield now they'll actually get 20-30 bags of yield with increase in yield it will surely increase profits to farmers. Moreover the drought prone areas will also get water by this method. With this the water will be free from any kind of pollution. Along with farmers the jobless who get to work in the non-governmental local body to maintain these works will also get jobs.

IMPLEMENTATION OF DELIVERY AND BUSINESS MODEL:

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DESCRIPTION AND SUPPORT BY INSTITUTE:

Institute encourages students to develop their innovative thoughts and provides necessary infrastructure to implement their ideas.

THE END
