

## **SMART IRRIGATION SYSTEM**

The world is suffering from water crises and most of our pure water is given to agriculture. Farmers use water very roughly and a large amount of water is being wasted in this process. For the solution of this, I was thinking to introduce a smart irrigation system to Pakistan which may lessen the use in agriculture and water will be used smartly. Smart irrigation consists of a moisture sensor, Arduino, and water motor pump. We use Arduino analog pins for controlling the motor and using digital pins as input for the moisture. the sensor, when moisture sensor gives a signal to Arduino motor, turns on and provides water to field until soil. moisture goes to the desired value. It is also used in lawns. In houses, no one gives attention to flowers in lawn trees and grass by using this system lawns will remain wet. One moisture sensor can take reading up to 600m. it is a very cost-effective and maintenance-free device.

## **CLEAN ENERGY, UTILIZING CANAL'S FLOW**

Pakistan is under the swear attack of global warming and climate change. Air pollution and global warming is a well-known problem to which all the countries and especially the united nation are paying attention. There are many ways of power generation like coal, petroleum, hydropower, atomic, and wind. Most of these methods are in some way related to air, land, and water pollution.

We have an idea to generate clean energy, power from renewable energy. The canals in Pakistan have a good water flow, which can play a major role in power generation using a turbine. A drum, made of non-rustable material, attached with an induction motor would be placed on the canal and it will produce clean energy for days, months, and years. The amount of energy generated would be depended on the water flow rate.

## **ENERGY FROM RUNNING MOTOR**

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We are come up with the idea of generating energy from a source that is running with supplied energy. Let me put it this way. Let us suppose we have a running motor, that's been running for so many hours for a specified purpose. What if we drive a small induction motor with the above-mentioned motor using some gears? In this way, the motor can perform its task and play a role in power generation with a little extra effort and that generated energy can be stored in a battery for some other purpose.