**REAL TIME WEATHER BASED SYSTEM SMART**

**SPRINKLER SYSTEM FOR GOLF COURSE**

**Abstract:**

There has been a lot of speculation regarding over wastage of water in golf

fields to maintain whereas there are so many people who die due to lack of

proper water availability every year. The project is developed to control the

over usage of sprinklers on a golf course and also maintain the optimum

quality of the greens .The sensors record the parametric values like

Temperature, Humidity and Soil Moisture. Then, if set under automatic

condition the sprinklers would start otherwise , They can be held manually

too. The IOT device is connected to a Mobile phone app and also a web

monitor which helps to monitor and control the motors efficiently.

**INTRODUCTION:**

**OVERVIEW:** One of the major factors in the design, refurbishment, and long-term maintenance of any golf course is the way the greens and fairways are watered. In some golf courses watering systems such as sprinklers or drip water wires are fitted to sprinkle the water automatically and reduce human load. Normally sprinkler systems operate with respect to time, which means if we program it at 9 am it will be on even if rain occurs during that particular time. Since water is a precious resource we need to use it very carefully. The Internet of things will make the system more efficient.

The project focuses on Continuous monitoring and storage of weather and soil moisture information of the golf course and generating an alert if the soil moisture is above the threshold value .The water sprinklers will be controlled remotely using mobile app .Less latency in communication from device to cloud with MQTT

**PURPOSE:** One of technologies in the rise, the Internet of Things has started to provide a new way for analysis, luxury, Efficiency and hassle free working in several sectors of the industry and other places. You can sense accurate temperature parameters inside a cold storage or at a furnace and send alert messages to the responsible authorities hence averting danger. You can control your house electricity when you are away and also figure out intruders if any, inside .There are several examples and utilities of IOT. As a part of every technology race, it has also become a part in every core company's work flow wherein they always try their hand at this.

**Literature survey:**

**Existing problem**:

The Golf course have the 8-12 acres of land with full of grass. Giving required amount of water to the ground is very difficult. By using sprinkler, we spread water over all Golf course. But the amount of used is a question mark.

**Proposed solution:**

Here, Real time weather based smart sprinkler system is proposed. It regularly takes the temperature and soil moisture values from dht11 sensor and sent to app. By observing that notifications we operate water sprinkler by online using IOT. Then required amount of water is spread over the Golf course.

**BLOCK DIAGRAM:**

**NODE-RED**

**IBM WATSON AND IBM IOT SENSOR**

**MIT APP INVENTOR**

**PYTHON IDLE (PYTHON CODE)**

**SOFTWARE DESIGNING:**

In the software designing part create an IBM cloud platform. In this design the arduino model is used. The software should be design by taking values from the dht11 sensor and then sent to the IBM cloud services and then the data send to the mobile application which was developed using MIT app inventor. Here we use python language for coding.

**ADVANTAGES & DISADVANTAGES:**

**Advantages:**

* Without Human effort we maintain the good Golf course.
* Supervision by online.
* Save a ton of money by reducing water waste.
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* Enhanced landscape health and beauty.
* Helps us to prepare for the future of water.

**Disadvantages:**

* The weather based smart water sprinkler system is a bit expansive depending on the size of your ground, we will need more systems.
* The Golf course has the very large area. To spread over all the ground, we require the more systems and observation become difficult.

**Applications:**

It is used in all the Golf courses, supervision by online using IOT device. We avoid the water wastage and get the good ground. We use this project in all type of play grounds.

**Conclusion:**

* We can decrease the WATER WASTAGE.
* We observe the weather conditions in the Golf course by online.
* We switch ON/OFF of water sprinkler by online using IOT device.
* This will decrease the human efforts.
* This project will also use in the many Play grounds.

**Future scope:**

Now a days, many of the Golf course and Play grounds using these types of systems. In Future everywhere in every field people use the Internet of Things projects. Because the projects will reduce the human efforts and wastage of nature.

**Submitted by :** Varsha.J.S