**CROP ANALYZER SYSTEM**

Design a precision irrigation control system based on IOT in

which the main components include soil moisture sensor and

temperature sensor as well as climate data. The system is a

microcontroller, for example Arduino or Raspberry Pi that

receives data from sensors and sends the data to a cloud for

processing. A mobile application for farmers consist of the data

analysis results and sends timely notifications and

recommendations on irrigation.

**Tools and Technologies :-**

Hardware: Arduino uno, Soil Moisture Sensors,LDRLM393, DHT11.

Software: Arduino IDE, python

Mobile Application: Using some software

**Impact and Benefits of the Smart Irrigation System**:

#Efficient Water Use:-

Offers precise irrigation on real time information to save water wastage resulting from over and under irrigations.

#Higher Crop Yields:

Provides better conditions for plant growth by ensuring timely application of water hence increased productivity of crops.

#Cost Savings:-

Minimizes the cost of water and general maintenance by utilizing water efficiently and safeguarding crops against loss.

#Environmental Conservation:-

Enhances sustainability in agriculture through the reduction of wastage and runoff water.

#Real –Time Monitoring:-Enables farmers to monitor soil and man’s condition via the cellular network outside farms.

#Weather Adaptation:-

Makes necessary changes in the irrigation practices after the weather forecast to ensure no irrigation is done when there is rain.

#Reduced Labor:-

Irrigation becomes routine therefore minimizing costs of time and manpower.

#Better Soil Health:-

Curbing the practice of excessive irrigation which is prone to causing soil erosion and the use of fertilizers.

#Scalable:-

Accommodates a large area of operation farms as is provided with more sensors and cloud services.

#Data-Driven Decisions:-

Exploits past history for making best decisions pertaining irrigation and management of the farm.

# Data monitering by real owener of farm :-

Let suppose some one was not able to come to farm so he was monitering his farm details in his mobile through the mobile application .

**KEY COMPONENTS :-**

Sensors: Document the conditions of the soil in terms of moisture content, temperature as well as humidity.

Microcontroller: it computes the average of the signal that is obtained from the sensors and then do

something when the data is more than the set limit.

Communication Module: Transmits data utilizing Wi-Fi, Bluetooth or technology is used.

Cloud Platform: Pumps up data analysis and carries out selection calculation models.

Mobile App: Affords to present the results, provides notifications, can be used as a manual one or there is an option when operating mode can be set, and it triggers the irrigation system