# Smart irrigation

- A smart irrigation system is an automated system that uses sensors and technology to efficiently water plants based on their specific needs. It helps conserve water and maintain healthier plants.
- Monsoon dependent Indian Agriculture
- Automatic Irrigation
- An over-irrigation and under-irrigation
- Soil moisture, air humidity, temperature and water level in the soil are wirelessly transmitted using wireless technology for better production.

- To save water and reduce human intervention in the agriculture field
- Continuously Monitoring the status of sensors and provide signal for taking necessary action
- To get the output of soil water sensor and provide water to crop
- To observe other parameters for better yield

# *Irrigation methods*

The smart irrigation system mainly includes various technologies such as sensor technology,

automatic control technology and computer technology. Combined with garden irrigation methods such as sprinkler irrigation and drip irrigation.

Drip irrigation

Sprinkler irrigation

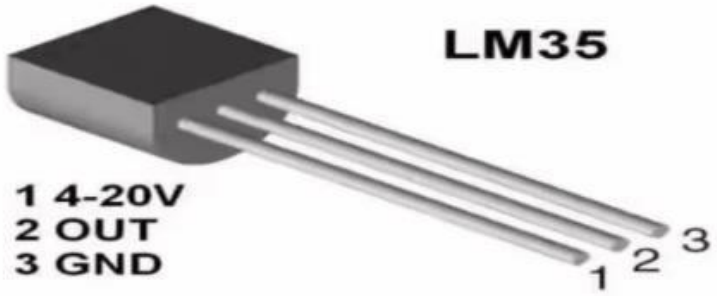
## *SENSORS*

Three sensors used in the system which are mainly as follows:

1. Temperature
2. Soil moisture
3. Humidity

# 1. Temperature Sensor

- LM35
- Output voltage is linearly proportional to the Celsius (Centigrade) temperature.
- Temperature range is 55 to 150 degree C.



# 2. Soil Moisture Sensors

- Common type is a Frequency domain sensor
- Neutron moisture gauge
- In this sensor we are using 2 probes to be dipped into the soil as per moisture we will get Analog Output variations from 0.6012volts. Input Voltage 12 VDC Download

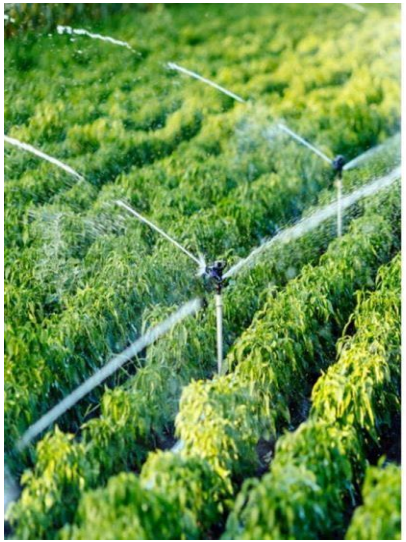
# *3. Humidity Sensors*

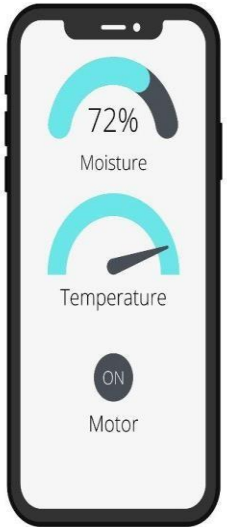
- It measures both air temperature and moisture.
- Relative humidity expressed as a percentage.
- HS1100 is used for sensing humidity.
- The output in terms of frequency range 5khz to 10khz.

## *Advantages*

- Increase in productivity

- reduced water consumption
- Safe
- No manpower required
- Reduce soil erosion and nutrient leaching
- Require smaller water sources





# *Disadvantages*

- costs for purchasing, installing and maintaining the equipment.
- reliability of irrigation system (due to human error when settingup)
- increased maintenance of channels and equipment to ensure it is working properly.