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Civil engineering

Class work 2

A. What is to be provided is an automated system that can control the irrigation of the farm and as well provide information as do all Mechatronics systems. The system read the soil temperature, the moisture content and the humidity of the soil and sets an appropriate watering ration for the plants; it also triggers an alarm when there is no sufficient water in the tank. When values are read with detectors the values are compared which triggers the relay to pump/ turn off the watering.

B. For the hardware features the components would consist of

- Soil moisture sensor
- Peristaltic pump/ motor
- Temperature and humidity sensor
- Ultrasonic sensor / Ping sensor
- 4 channel relay
- Buzzer
- Bluetooth module
- And a microcontroller module (arduino)

There is going to be an analysis by sensors of the moisture, temperature and humidity according to the sensor readings further actions would be taken.

Once the values of the soil temperature and moisture are read, if the values are below a set threshold value then the pump would automatically turn on and if the level of moisture temp and humidity increase up to the threshold value the pump would go off. For the alarm, where there is an insufficient supply of water in the tank, the depth sensors such as the ultrasonic or ping sensors would sense the proximity of the water would communicate via an alarm buzz, a text to a hosted device or even LED indicators lights. If the depth is below a set value e.g.

X meters the notification would be sent.

C. Start

Read temp (T)

Read Humidity (H)

Read soil moisture

Read Threshold value (TV)

Compare values (V)

Print Values (V)

If $V > TV$

Turn off Pump

Else

Turn on pump

1- Read proximity (P)

If $P > X$ Meters

Print "insufficient water"

Else

Return to O

Flowchart





