

## Conceptualization - Automation of an irrigation system.

### Specification:

#### Hardware

- Sprinklers
- Pipe systems
- Sensors
- Water tank/reservoir
- Alarm bell

#### Software

- Graphic User Interface (GUI)
- Timer
- Access Control
- Error detection system
- Activation trigger system
- Pumping system

#### Hardware

The sprinklers ensures the soil is properly irrigated and it maintain moisture content as it is the medium that dispenses water across the farm.

The pipe system are responsible for the flow of water from the reservoir to the sprinkler system.

Sensors are used to read the soil's temperature and determine the moisture content of the soil.

The water tank/reservoir acts as a storage medium regularly filled with water

An alarm bell would set off when there is insufficient

water in the reservoir for irrigation.

## Software

A Graphic User Interface serves as the interface used by the software developer to send commands, it would consist of a push button, text view, edit view, dialogue e.t.c.

A timer would be set to regulate the time interval in which water should flow.

An access control system which would include fingerprints, voice recognition would serve as an enabled password for the system and would ensure maximum security of the system.

An error detection system would detect when the system is faulty.

A trigger activation system would go off when there is insufficient water for irrigation.

A purging system would <sup>supply water to</sup> go off and fill the water reservoir when the trigger system goes off for insufficient water supply.

## Software Design:

Algorithm

step ①: start

②: If water is in the reservoir

- ③: Turn on the reservoir tap
- ④: Sprinklers <sup>goes</sup> should set off

Else

Alarm should be triggered

Pumping system should be turned on

- ④: Sprinklers goes off
- ⑤: After an hour, sprinklers should be turned off
- ⑥: Reservoir should be turned off
- ⑦: Stop.

