UMAR SHAMWEEL MAKUN

BIOMEDICAL ENGINEERING

18/ENG08/024

ENG224

For good and proper farming the environment must be crop friendly and pest free. And it should be suitable for the crop you want to plant . to check the temperature of the soil, we can use advanced underground sensors to be able to read temperature, however the soil temperature

responds to net effect of the daily energy balance. And also to determine the moisture content of the soil we can use the oven dry method which gives very accurate result or even soil moisture sensors. Also a radio network which is made up of up to 254 sensors can manage data . for humidity and temperature sensors were developed using libraries that follow the software environment package. Radios were chose due the cost price which is low ang have high performance.

B.) hardware features:

Analogue reference: used to set reference voltage

Voltage regulator: used to regulate the amount of voltage passed

Power led: this led lights up whenever the power is on.

Pipes

Water reservoir

Soil cooler

Water pump

Software features:

 GUI

Command buttons

Timer

Water level checker

Access control

Microsoft windows

Hard drive space.

C.) step1: start

Step2: put password for irrigation software

Step3: open irrigation software

Step4: check readings for soil temperature, moisture content and water level of the soil

Step5: display readings for soil temperature, moisture content and water level of the soil

Step6: store the above readings

Step8: set time interval for temperature measurement

Step9: trigger alarm if water is insufficient

Step10: Stop

FLOW CHART

START

```
                    ┌─────────────────────────┐
                    │  PUT PASSWORD FOR       │
                    │  IRRIGATION SOFTWZRE    │
                    └─────────────────────────┘
                              │
                              ▼
                   ╱─────────────────────╱
                  ╱  OPEN IRRIGATION    ╱
                 ╱   SOFTWARE          ╱
                ╱─────────────────────╱
                              │
                              ▼
              ╱───────────────────────────╱
             ╱  check readings for soil  ╱
            ╱  temperature, moisture    ╱
           ╱  content and water level of╱
          ╱  the soil                 ╱
         ╱───────────────────────────╱
                              │
                              ▼
          ╱───────────────────────────╱
         ╱  display readings for soil ╱
        ╱  temperature, moisture     ╱
       ╱  content and water level of ╱
      ╱  the soil                   ╱
     ╱───────────────────────────╱
                              │
                              ▼
              ╱───────────────────╱
             ╱  store the above  ╱
            ╱  readings         ╱
           ╱───────────────────╱
                              │
                              ▼
              ╱───────────────────╱
             ╱  set time interval╱
            ╱  for temperature  ╱
           ╱  measurement      ╱
          ╱───────────────────╱
                              │
                              ▼
           ╱───────────────────────╱
          ╱  trigger alarm if     ╱
         ╱   water is            ╱
        ╱   insufficient        ╱
       ╱───────────────────────╱
                              │
                              ▼
                       ╭───────────╮
                       │   STOP    │
                       ╰───────────╯
```