CHUKU EMMANUEL CHIMENEM
18/ENG07/003
Petroleum Engineering
ENG 224 classwork

A) Dicuss the application development following the software development cycle

Conceptualization
The project to create a software detect temperature and moisture content of the soil, Determine a suitable time interval for irrigation and alert the user in the case of insufficient water in the tank

Specifications: The project will need suitable programming software (GW) / recorded values of optimum range of temperature and moisture content, It would also require a password system restricting access

Design: the designing of the program will require HTML and c++ for password system

~~Implement~~
Implementation
- The structure of application will be created using HTML and c++ for password system
- The design layout will be created using CH
- The password system will be made with c++

Testing and Debugging
Testing and debugging will be undertaken throughout the Implementation process: A final test will also be carried finished product

Release of the software is dated as 17th may 2022 but we could change in regards to changes in the development gate

- Hardware features
  - Using commercially available SKYE Temperature probes which have an accuracy of 0.1°C. It is placed deep into the soil in order to take a more accurate reading and connects the software system electronically

- Moisture content is measured using an electronic soil tensiometer which would give an estimate of volumetric water content in the soil. It is placed at root level to get a more accurate reading

- Irrigation system should be put in place to supply water to the fields when needed. This is fitted with a tank.

Software features

The need for Graphical users interface, programming software extensions. login file for storing password

c Algorithm

STEP

1 Start
2 Read password -file
3 Input
4 If password = password file
Read temperature
for temperature > 24°C
Output 'start' ELSO output 'STOP'
for moisture content < 8.9%
Output 'Start'

Else
    Output 'STOP'
    Else
    Output "wrong password"
5. Read water level
6. If water level < 2 gallons
        output 'Ring alarm'
    Else
        STOP
7 STop

Flowchart