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Civil engineering

18/Eng03/054

Programming

A. APPLICATION DEVELOPMENT

Conceptualization

The application to be developed is a software which will support the ABUAD irrigation system and interact with the machine in order to be able to:

Read the soil temperature

Determine the soil moisture content

Configure a specific time interval for the water system based on the above

Trigger an alarm if there is an insufficient water supply for irrigation

Enable a password for the system

The software is able to regulate water levels depending on various factors such as weather predictions and soil moisture levels.

Specification:

The application will be made up of Hardware and Software components

Design:

Research

Prototyping

Front End design

User interface design

User experience design

Coding

Back End design

Evaluation and Encryption

Implementation:

Front End implementation

Back End implementation

Testing and Debugging

Use of test data and diagnostic tools to determine whether the software is ready to released and utilized

Release and Update

Application is released and updated based on user feedback

B. SOFTWARE FEATURES

Streamlined dashboard which provides information based on data collected.

Programming language (Python) which will give the irrigation machine specific instructions to carry out under specific conditions.

Graphic user interface which enables user interaction with the irrigation machine

HARDWARE FEATURES

High-tech sensors for monitoring weather, humidity conditions, soil moisture and water levels.

Alarm systems which will be triggered when there is insufficient amount of water.

Thermometer for checking the temperature of the soil.

Control systems for operating the irrigation machine.

C. ALGORITHM AND FLOWCHART

Step 1: Start

2: Water level, temperature, moisture content=0

3: Read water level, temperature, moisture content

4: If water level < 40%

Turn on alarm,

Else alarm off

5: If temperature > 35 degrees C

Turn on irrigation system till temperature = 35°C

6: If moisture content < 30%,

Turn on irrigation system till moisture content = or > 30%

7: Enter Password

8: If password == xoxoxo

Print correct password

Else Print incorrect password, re-enter password

9: Implementation

10: End

D. TD OR BT APPROACH

