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**18/ENG04/007**

**ELECT/ELECT ENGINEERING**

**ALGORITHM ASSIGNMENT**

SOFTWARE DEVELOPMENT PROCESS:

The Software Development Process they are steps involved in building an application. There are FIVE steps involved in the software development Process of the application ;

CONCEPTUALIZATION:

This process is all about having ideas to solve a problem,

The problem in this case is the Dry season in ABUAD Farm, and as an engineer, we solve problems. To solve this problem, an Application would be required ( Automated Irrigation System). This application will be able to measure the soil temperature, moisture, also be able to control the timer to wet the soil and the plants.

SPECIFICATION:

This involves the Hardware and Software Features,

Hardware Features; Soil temperature Sensor, Soil moisture sensor, sprinkler, tank, pipes, source of water, Arduino, Arduino LCD., Level sensor

Software Features; GUI, Timer, Notification system, Bluetooth system, DBMS.

DESIGN:

The scenario of application start from installing the app on phone then open the application, First of all, the main screen of the app will be loaded when the user will choose which device is connected to Bluetooth.

IMPLEMENTATION:

Implementation is when the code is written for the application. This is performed by using either a High level language or Low level language.

As it shows in Figure below, the project had divided into 3 fields (Field A, Field B, Field C). However, (Field A) has (valve 1 and flow meter 1), (Field B) has (valve 2 and flow meter 2) and (Field C) has (valve 3 and flow meter 3) and valve 4 with flow meter 4 is the main.

 As it shows in the chart, it shows how the system works in one field if only one moisture sensor of Field B active the system will not work also temperature sensor and the light sensor works together.

TESTING AND DEBUGGING

Testing and Debugging, this is checking the performance of the system and checking for errors and removal of errors,

This process would be done after every step in the design and the implementation. After this has being done, the hardware would also be checked and see if it functions properly. After all this a general test would be done.

RELEASE AND UPDATE

The web application is release to the public for use, and there will be an update and development on the application based on the user’s review

HARDWARE AND SOFTWARE FEATURES.

• Arduino

Arduino is "an open-source electronics platform based totally on clean-to-use hardware and software". The Arduino control panel programmed by Arduino c and is based on C and C ++

• Arduino[ LCD Liquid Crystal Library]

This library permits an Arduino board to control Liquid Crystal Display (LCD) that is on the Hitachi HD44780 chipset, which is on most text-based LCDs.

• Moisture Sensor

The soil moisture sensor comprises of two tests that are utilized to the degree the volumetric substance of water. The two tests permit the current to pass through the soil, which gives the resistance esteem to the degree the dampness esteem. When there is water in the soil there will be less resistance and the soil will handle more power. But if the soil is dry it conduct power weekly and needs less power and more resistance.

• Temperature Sensor

A temperature sensor is sensor to measure the ambient temperature. This sensor has three pins – a positive, a ground, and a flag.

• Level Sensor

The water-level pointer is utilized to demonstrate the water level in the tank, by using this sensor we can control the flood of the water as well know the level of the water in the tank , and at any time we can know the water level in the tank, it has a basic circuit

ALGORITHMS.

1.Start

2.Enter password

If password correct

Print “Home Page”

Else

Print”Main Page”

3.Open Home Page

4.Read Temperature of soil

If above 40 degrees

Sprinkler rises

Else

Sprinklers remains node

5.Read Moisture of Soil

If above 400

Sprinkler rises

Else

Sprinklers remain node.