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COURSE TITLE: STRUCTURED PROGRAMMING

COURSE CODE: ENG 224

DEPARTMENT: MECHANICAL ENG

1.). DESIGNING PROGRAM USING THE SOFTWARE CYCLE

Application: This designed is applied to ease the problem of irrigation in Afes farm and it makes the work better and faster as well and more accurate.

This design can be downloaded only on iPads and tablets it can't be downloaded on any other device such as the phone and laptop. When the app is downloaded face recognition is required during registration of the app for security reasons and also information about the farm area is required so as to give right information of the farm. This app only takes 36mb. This software gives all necessary information to the farm by just screening the soil all the information of

reading the temperature of the soil collects data of the soil, determining the soil content and so on.

The time to allow water to flow is decided when you set the alarm on app the sensor on the pumping machine that is connected to the phone allows the water to flow according to the time you set on the alarm and if there's no water in the pumping machine it gives another alert to tell that there's no water and then you click on the notification given to you when there's no water then it shows fully in the app u click on pump then the water pumps.

Specification:

Hardware components

- 1.) Arduino uno board
- 2.)Arduino uniform water level sensor
- 3.) IPad device
- 4.) Temperature sensor

Software component

Timer

Error detection

Design algorithms and flowchart

Implementation and coding :The software is a web based software which is built with python on the server and javascript on the front end

Testing and debugging: The app is tested for further errors

Maintenance: Guidelines will be given and rules and regulations will be considered to agree or disagree.

Release and update: The app will be released next year due to what's going on at the moment and the app will be updated from time to time. Especially the impact of iOS upgrade will add to the update as well.

HARDWARE AND SOFTWARE FEATURES

Hardware: The Arduino Uno is an open-source microcontroller board based on the Microchip ATmega328P

It helps to detect the soil moisture content. While Arduino water sensor brick is designed for water detection, which can be widely used in sensing rainfall, water level, and even liquid leakage. The iPad device is where the app will be downloaded for usage and for the main work to commence. The temperature sensor can provide time updates on even the smallest fluctuation of moisture.

Software features

This app was developed using iOS operating system. The testing and the debugging will be updated always to lessen any means of hacking the system. The timer helps to tell to apply water at its appropriate time.

2.) ALGORITHM

An algorithm to show to show how the application works.

Step 1. Start

Step 2. Read the temperature

Step 3. Determine the moisture content of the soil

Step 4. If dry

Turn on sprinkler to wet

Step 5. If wet

Sprinkler remains off

Step 6. Then

Read time and moisture sensor again

