Name: Aluko Daniel Oluwatobi

Matno: 18/eng04/12

Deoartment: ElectricalEngineer

Software development cycle

1.planning: this is the first step to develop the application. In this stage, the conceptualization of this is to develop a software that interact with the machine in abuad farm. The machine should be able to read the temperature of the soil, determine the moisture content of the soil, configure a time interval for the water system of the machine and also trigger an alarm if there isn't sufficient water in the system the the software should also have a password before acess.

2.Analysis: the software should have a storage database, it should have a sensor to determine the amount of water in the tank, it should also have an alarm then then it should be well secured and also encrypt with a password so that unauthorised people won't be able to use it.

3.Design: thedesigningoftheprogramwilltaketheuseoftheprogramminglanguages;HTML,JavaScript,css,

4. implementation: this is just the actual development of the software

Steps:

Firstly, the structure of the application will be created using HTML

The design layout of the application will be done using CSS

The interface of the program will be made using JavaScript

Build a water watering sequence i.e time interval for the system

The alarm would be done with thr use of html

5. Testing and debugging: The initial tests will begin on the program, although the program not complete, it will under go numerous tests and Will be debugged. During the testing phase, the software is checked to ensure that defects are reported, tracked, fixed, and tested again until the software meets quality standards.

Hardware Features: This include Soil Moisture Sensors(hardware) which is calibrated for a variety of soils for accurate moisture results unaffected by soil salinity and soil texture. Plug-and-play with Decagon data loggers or use with non-Decagon data loggers running industry standard protocols. Soil thermometer for measuring the temperature of the soil, A large tank for the storage of water

Software features: The need for soil moisture sensor (software), programming software, extensions and data structures

Algorithm:

1. Start

2.Read temperature

3. Determine moisture content

5. Create time interval for watering

6. for soil moisture <500

Watering should be 20 seconds

Else

Water for 10 seconds

7. For soil moisture<350,

Water for 30 seconds

Else if reading >350, water for 20 seconds

8. Read tank size =1000litres

9. Real l =litres, s= seconds

10.for 30 seconds=600l, 20 seconds=400l, 10 seconds=200l

11. If tank size <600l for 30s saound alarm

Else water soil

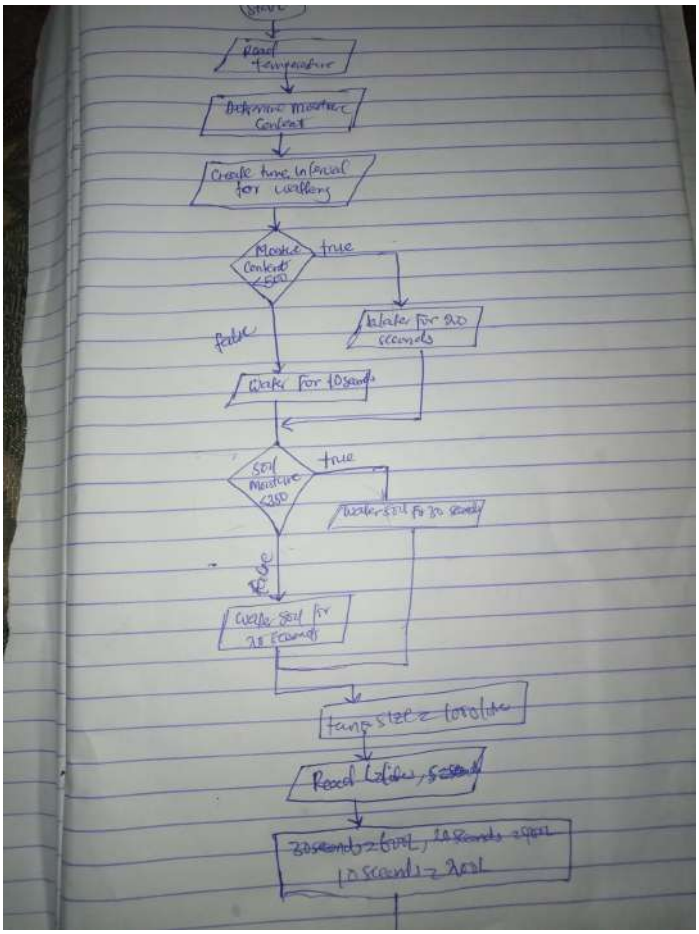
If tank size <300l for 20s sound alarm

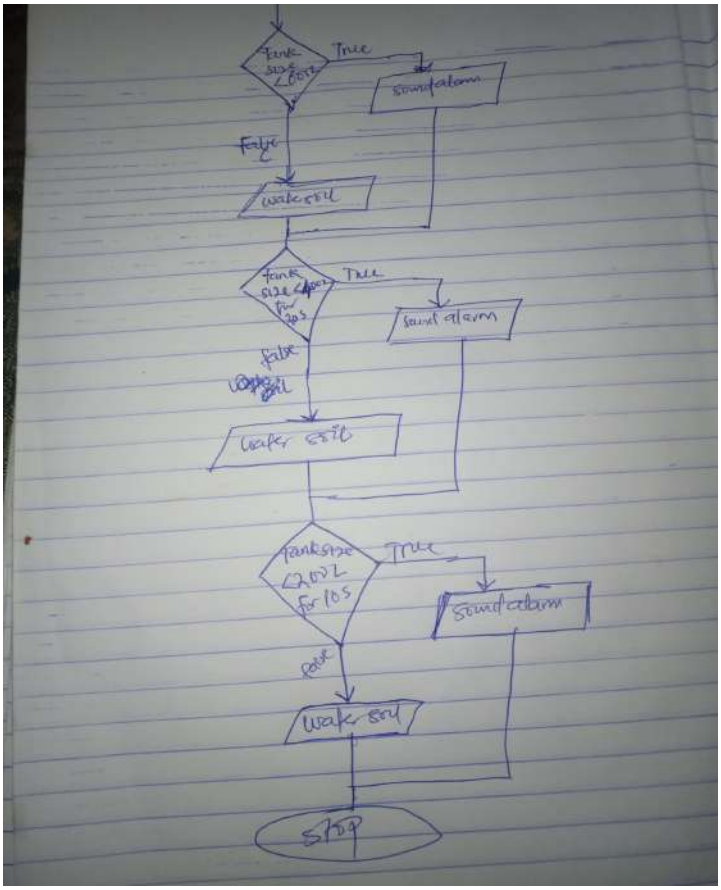
Else water soil

If tank size <200l for 10s sound alarm

End if

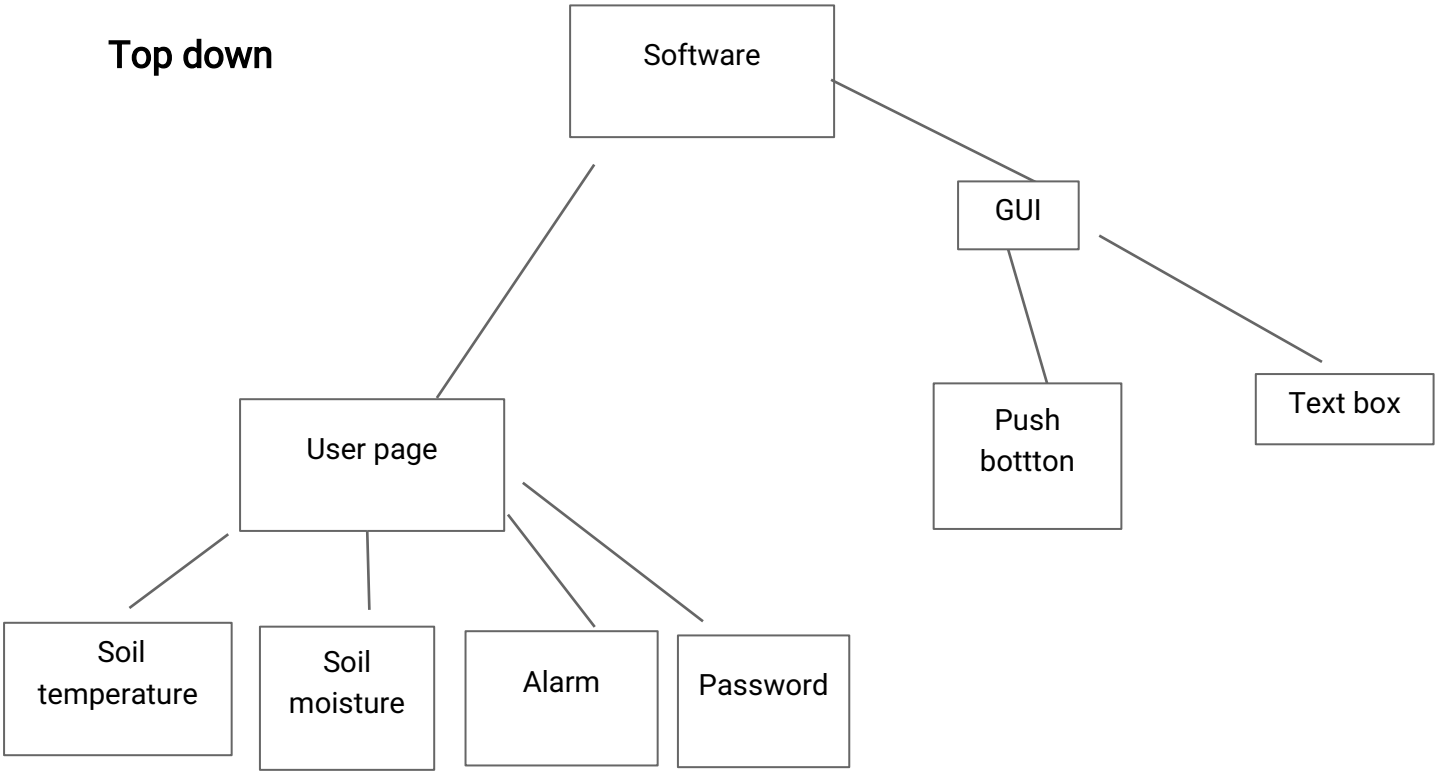
12. End.


Read temperature
Create time interval for watering
true
false
Water for 10 seconds
true
Water soil for 10 seconds
tanksize = totaltime
Read Latitude,
10 seconds = 2ml


True
soundalarm
False
water soil
True
sound alarm
False
water soil
True
soundalarm
False
water soil
Stop

Flow chart

Top down


Software
GUI
User page
Push bottton
Text box
Soil temperature
Soil moisture
Alarm
Password