

Olotu Olamide Fyinfoluwa -
18/Eng 06/05/21

Mechanical Engineering

1) Conceptualization

This is a web application that seeks to ~~use~~ automate the ABUAD irrigation system. It is an application that helps to ease the stages or process of irrigation in the abua farm. It goes far in determining the temperature of the soil, soil moisture content and also it determines the statistical feasibility of the farm through graphs and statistical analysis.

2) Specifications:

This application which is broken down into smaller modules consist of both hardware and software components. The hardware consist of data collection systems which transmits them to the central hub. The application also has manual sensors, low water resistance alarm at the ^{stake} fork and computers to aid its work perfectly. While the user interface under the software is quite easy to use which contains access control, to help restrict unauthorized access. It also makes use of multiple data entry control and statistical analysis, and monthly updates.

3) Design:

Algorithm and flowcharts are used to accomplish the software design, which is given further below. It is concerned with the functionality and interactions that take place within the software.

4) Implementation:

This is the most complex part of the application design, here the application is built in this stage.

This is where the codes required for the application to function efficiently are written using the various specifications of the algorithm & flowchart.

Access Control: This is to enable restricted access to the data entry portal of the application by authorized ABUAD farming staff. It would be regulated by a user registration process.

Statistical Analysis Ability: This feature is to enable the application draw up graphs and analysis in various forms based on the stored data in the applications database.

Graphical User Interface & Dashboard: This takes care of the interactive interface for the user. It involves the platform for data entry, test running, result display, data analysis display.

Multiple Data Entry Control: This feature is to eliminate duplicity of a case. It may happen that they may run some tests on the farm land, this feature would ensure that a case isn't duplicated or repeated.

Central Hub: This is a remote designation where the database is going to be stored and all the major controls would emanate from.

Computers: This is to work hand in hand with the irrigation machines to run testing processes as well as receive feedback.

Low water resistance alarm: This is a hardware feature put in place at the irrigation storage tank to notify the authentic ^{staff} ~~user~~ when to pump water into the tank or when water level is low.

Light wave sensors: These are hardware features put in place at various parts of the sub level soil to ~~withstand~~ ^{withstand} externally aid and determine some ^{certain} characteristics at that point in time.

Testing and Debugging:

Once the features of the application are completely done, series of tests are done. Also UX tools are used to track how users interact with it. The final application is then accessed, then checked for errors and bugs which are corrected. This stage prevents the release of a faulty application to the end users.

Release and update:

There is constant need to update the system in real time as information about the irrigation system and more advanced methods come in play. This is also to have the basic upkeep and maintainance of the application. After this process, the application is released for users as all conditions have been satisfied.

(b) Hardware & Software features.

Software features	Hardware features.
* Access Control	Central Hub
* Statistical Analysis	Computers
* Graphical User Interface & Dashboard	Low water resistance alarm
* Multiple Data Entry control	Light wave sensors.

© step 1: start

step 2: Acquire data from sensor

step 3: Store data on central Hub

step 4: Pumping of water

step 5: If soil moisture is low

Print "Commence to tank for irrigation"

else

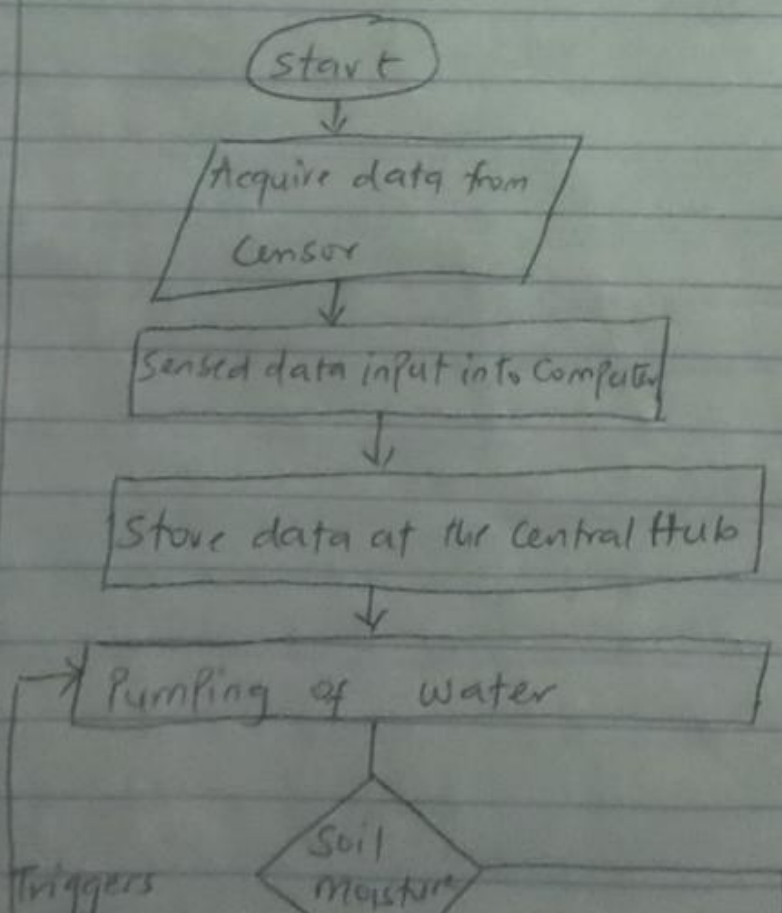
Print "store data in central hub" stop irrigation

step 6: If water at the tank is full

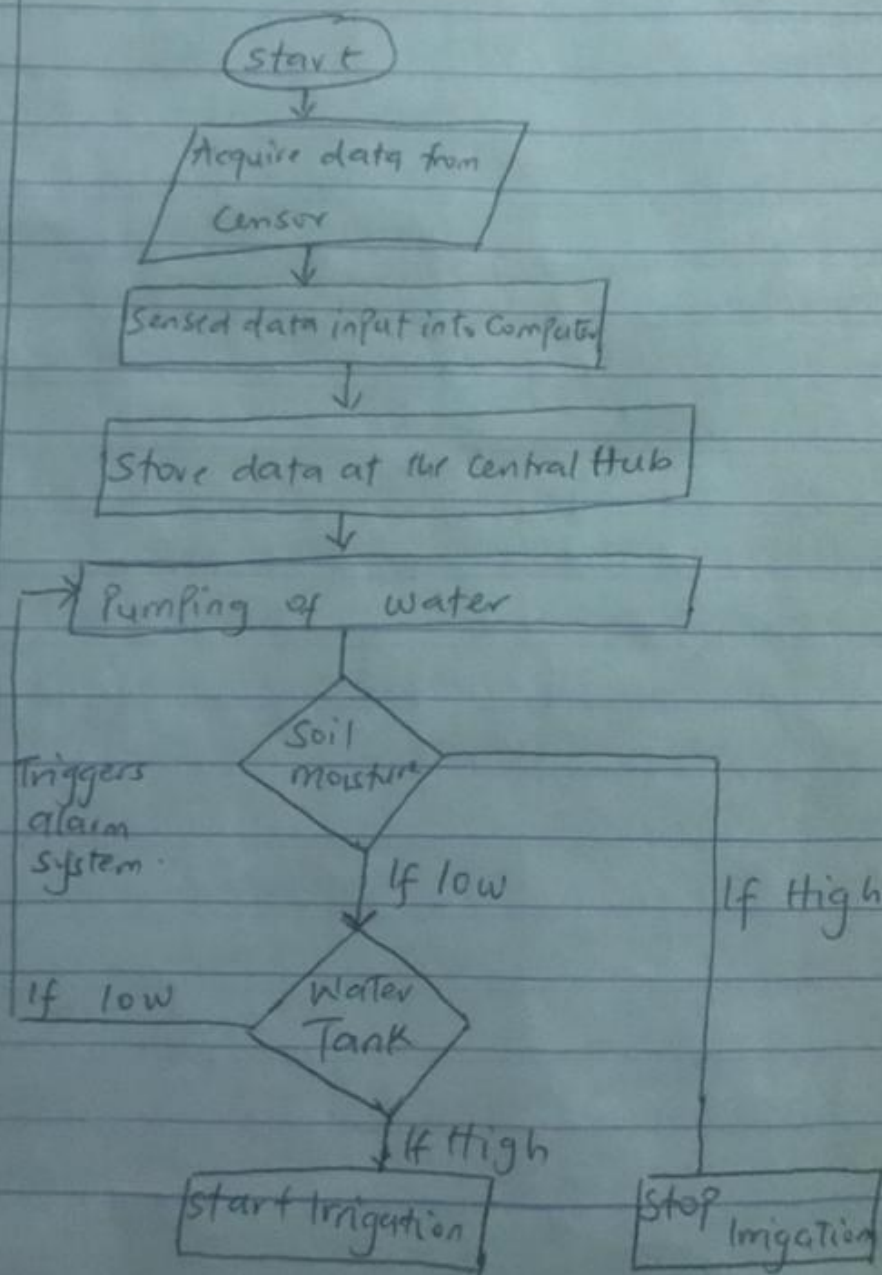
Print "Start irrigation"

else "Trigger low water level alarm"

Print "Commence to pumping of water"



Pumping of water.
 Step 5: If soil moisture is low
 Print "Commence to tank for irrigation"
 else
 Print "store data in central hub" stop irrigation"
 Step 6: If water at the tank is full
 Print "Start Irrigation"
 else "Trigger low water level alarm."
 Print "Commence to pumping of water"



12

If works
Print
else
Print
as

ABQAD Irrigation Application.

