ENG 224 ASSIGNMENT

OKPALE AHIDWAWA GIFT-OHEU 16th May 2020
18/MHS01/272
BIOMEDICAL ENGINEERING

A The application development following the software development cycle are;

i Conceptualization: This is having an idea of how to solve the problem. In this case, how to solve the irrigation problem which is to automate the system by developing software that can interact with the machine.

ii Specification: Hardwares which will be avaliable are; i) Water tank viii) Solar Pand
ii) Pipe System ix) Rain Sensor
iii) Sprinkler
iv) Temperature sensor
v) Moisture sensor
vi) Level sensor
vii) Plastic water solenoid valve

Softwares which will be avaliable are;
i) Graphical user interface (Push button, dialog box, textbox)
ii) Error detection
iii) Access control
iv) Timer
v) Password oriented

iii Design: Shows the step-by-step of how the application will flow. Design determine the nature of output and input index and provide the input and output layout with the processing steps required. The design involves testing the various conditions, checking the automate part in the procedure depending on the outcome of the test.

They are two ways of accomplishing these
- Algorithm
- Flowchart

iv Implementation: You carryout the implementing of the application using programming language (High level Language and Low Level Language)

v Testing and Debugging: The developed application may not run due to the possiblities of logical and syntax errors. These errors are referred as bugs and the process of removing these bugs is called debugging. The errors in the program are checked by testing it at various stages with the use of test data and diagonstic tools.

vi Release and update: The application is released for use with ~~release~~ real time and it will be updated when necessary.

B Hardware features

i Water tank: This is where water is stored for irrigation and it is connected to all the sensors.

ii Piper system: This is the pathway of the water from the water tank.

iii) Sprinker: This is the outlet of the irrigation system where the water is transpered to the crops.

iv) Temperature sensor: It is utilized to degree surrounding temperature. It has three pins - a positive, a ground, and a flag. This is a straight temperature sensor. A alter in temperature of one degree centigrade is rise to alter of 10 millivolte at the sensor output

v) Moisture sensor: The soil moisture sensor comprises of two tests that are utilized to degree the volumetric substance of water. The two tests permit the current to pass through the soil, which gives the resistance esteem to degree the dampness esteem

When there is water, the soil will conduct more power, which implies that there will be less resistance and vice versa

vi Level sensor: Water level pointer is utilized to demonstrate the level of water in water tank, by utilizing this we can maintain a strategic distance from the flood water, and at any time we can know the level of water in tank.

vii Plastic water solenoid valve: It is to control the flow of fluid, valve is ordinarily closed and has a ½" non-taped outlets on each conclusion. On the off chance that 12V is connected through the two terminals of the valve the solenoid will open the valve.

Software features

i GUI (Graphical User Interface)
ON/OFF buttons allows the user to switch on or off the system

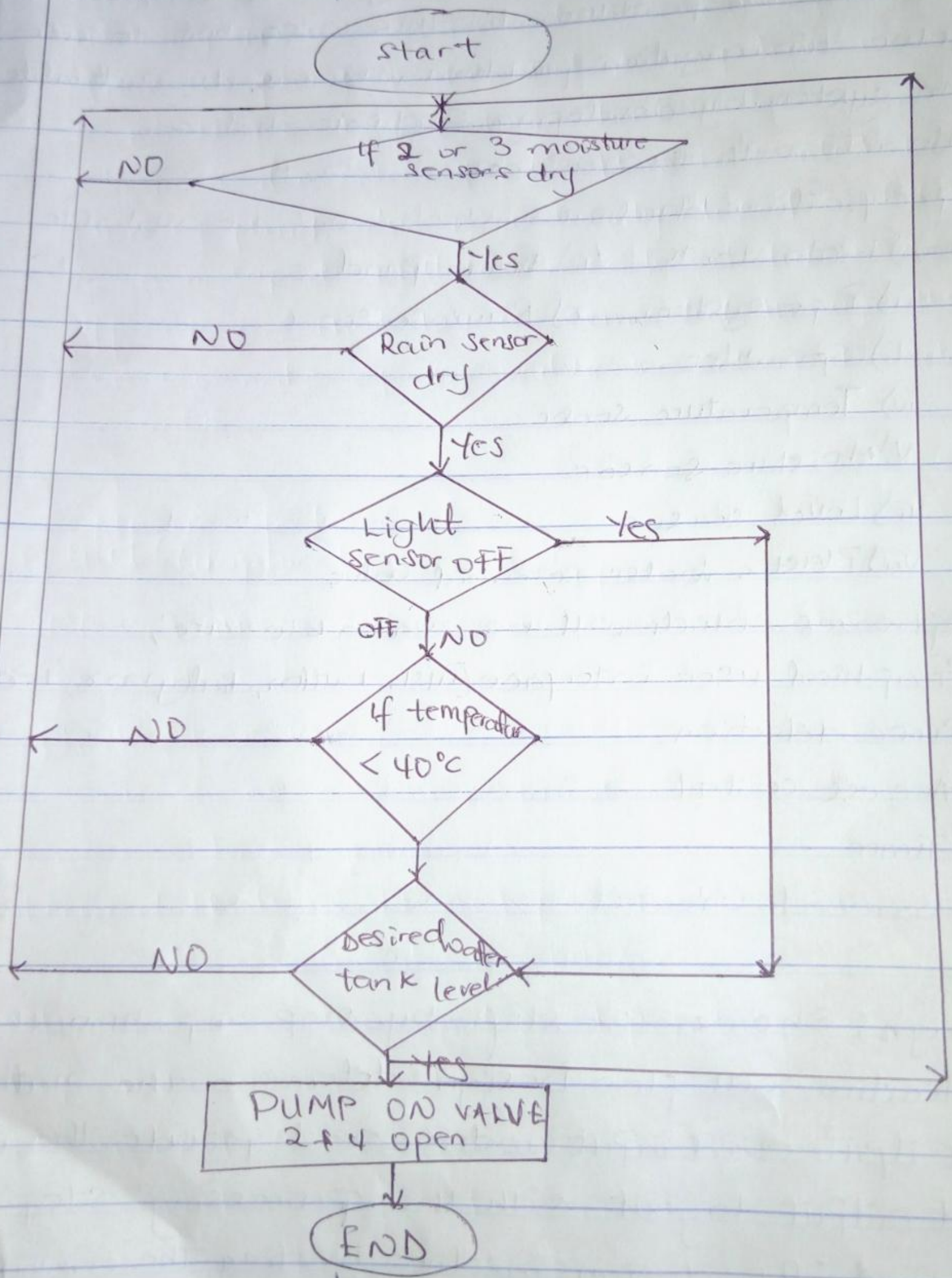
ii Dialog box: When clicked take user to details page which shows all the information and let user control system line by line.

iii Error detection: It notifies the user of any error in the irrigation system.

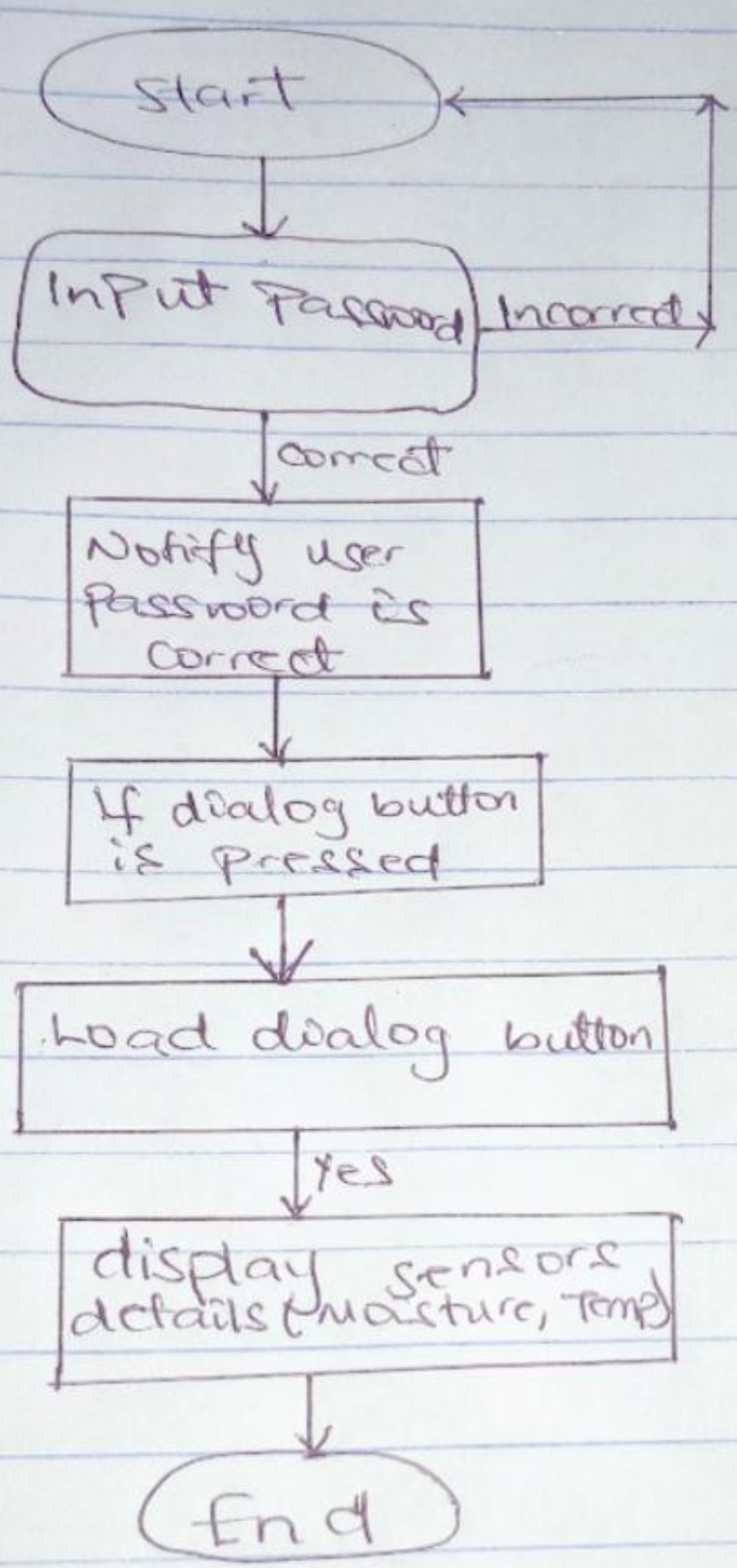
iv Timer: times the water depending on the information inputed.

v Password: Allows access to the user only when password is inputed correctly.

Hardware implementation




Flow chart of hardware implementation




Flow chart of software implementation.