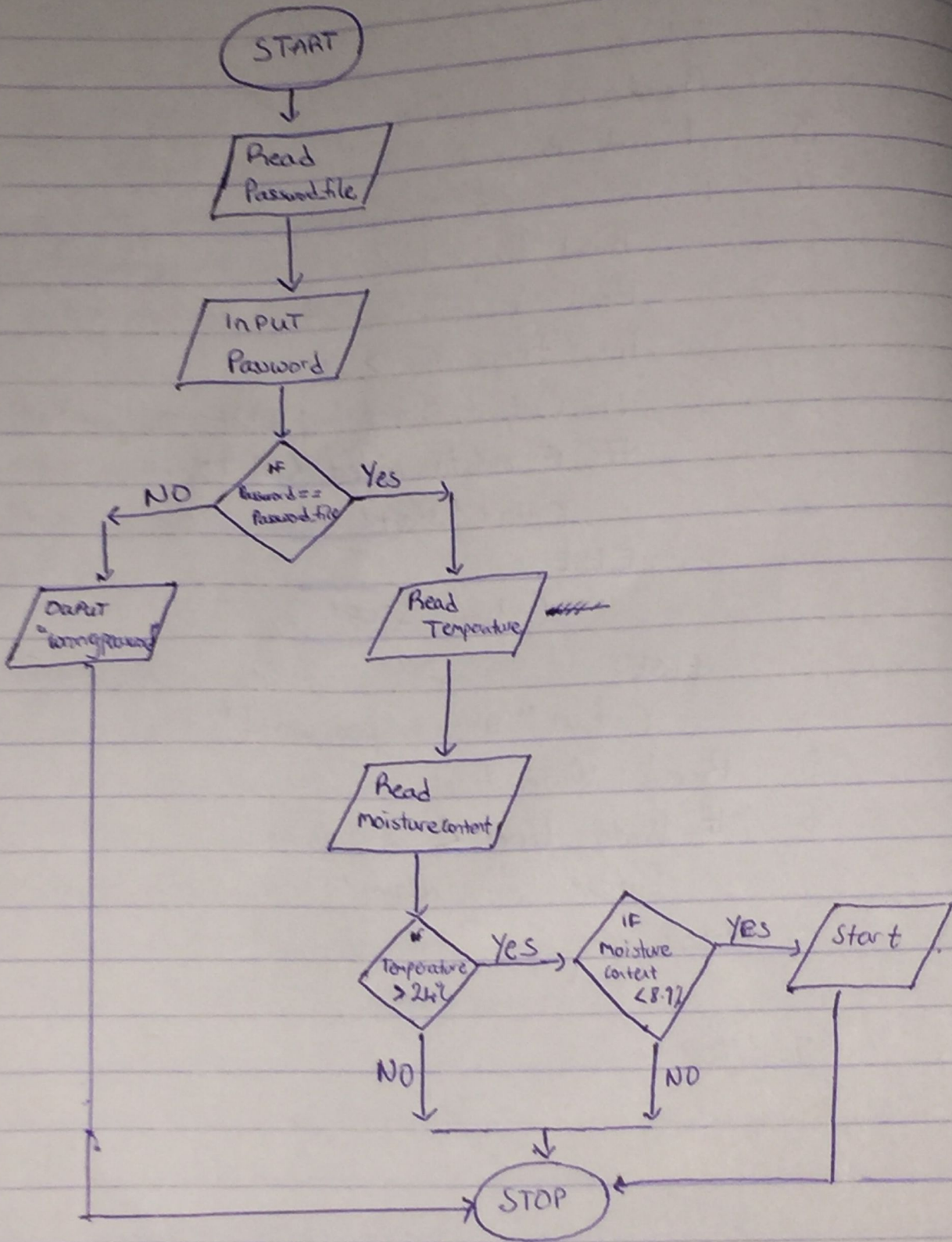


Flowchart



C Algorithm

STEP

1 Start

2 Read Password_file

3 Input Password

4 IF Password == Password_file

 Read temperature

 Read moisture content

 For temperature $> 24^{\circ}\text{C}$

 Output 'start' ; ELSE Output 'STOP'

 For # moisture content $< 8.9\%$

 Output 'start'

 ELSE

 Output 'STOP'

ELSE

 Output "Wrong password"

5. Read Water_level

6. IF Water_level < 2 gallons

 Output 'Ring alarm'

ELSE

 STOP

7 STOP

Hardware features

- Using commercially available SKYE Temperature probes which have an accuracy of 0.1°C . It is placed deep into the soil in order to take a more accurate reading and connected to the software system electronically.

The sensor consists of a Thermistor made of copper oxide that changes resistance with temperature. The resistance is then read with a modified ohmmeter and translated to temperature electronically.

- Moisture content is measured using an electronic soil tensiometer which would give an estimate of volumetric water content in the soil. It is placed at root level to get a more accurate reading.
- Irrigation system should be put in place to supply water to the field when needed. This is fitted with a tank.

Software features

The need for graphical user interface, Programming software extensions. login file for storing password

A) Discuss the application development following the software development cycle.

Conceptualization:

The project to create a software detect temperature and moisture content of the soil, Determine a suitable time interval for irrigation and alert the user in the case of insufficient water in the tank

Specifications: The project will need suitable programming software (GUI), recorded values of optimum range ~~for~~ of temperature and moisture content. It would also require a password system restricting access.

Design: The designing of the program will require ~~ess~~ HTML and C++ for password system.

Implementation:

- The structure of the application will be created using ~~ess~~ HTML
- The design layout will be created using C++.
- The password system will be made with C++.

Testing and Debugging:

Testing and debugging will be undertaken throughout the implementation process. A final Test will also be carried on the finished product.

Release of the software:

The date of release of the software is dated as 17th May, 2020 but could change in regards to changes in the Development cycle.