

ENG 224 ASSIGNMENT

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DEPARTMENT: CIVIL
ENGINEERING

MATRIC NO: 18/ENG03/004

NAME OF THE SOFTWARE: GREEN IRRIGATION PACKAGE
(GIP)

FIRST STAGE (PLANNING):

For the past years, ABUAD farm's biggest challenge remains to be the difficulty of harvesting their highest peak of crops during the dry season. It is depressing due to the fact that their goal is never reached because of this issue. After different contacts with consultants and several meetings with one another the board has come to a conclusion that the use of an automated irrigation system is the best way to tackle this problem.

SECOND STAGE (ANALYSIS):

ABUAD FARMERS face a big challenge. Which is not being able to water crops at a very large scale. Even if they manage to water at a large scale they obviously won't water some crops how they are supposed to be watered which leads to crops dying or not properly/fully grown for harvest.

THIRD STAGE (DESIGN)

Obviously the job is to be done by a software engineer which I specialize in and no doubt the use of an irrigation is the best solution. The device would be created with the use of fiber, carbon probe, faucet sprinklers and hoses are then connected to a valve which leads to the water source (tank). All these devices which are connected to each other will be controlled by a hand held tablet/remote which also has security features which can only be accessed by authorized personnel only.

FOURTH STAGE (IMPLEMENTATION)

The job is currently being built, because the board is really planning on going into the dry season with full force without any problem

affecting their financial goal. So the best step which we are taking is to build the device starting from now so that we can keep testing the device for the next few months before the dry season. The construction is going to last for a new month.

FIFTH STAGE (MAINTAINANCE)

The software (green irrigation package) will be maintained by proper software update so as to perform newer tasks. The parts for the hardware would be replaced the same time the software is taking place. The board also decided that the automated irrigation system could be beneficial to them through all the seasons. Which is one of the reasons why the software would be updated. Servicing of the entire device would be done after 2(two) months.

ALGORITHMS

ALGORITHM TO READ MOISTURE CONTENT

- (1)START
- (2)READ THE INPUT OF MOISTURE CONTENT "MC"
- (3)READ WET WEIGHT "W"
- (4)READ WET WEIGHT AFTER IT HAS DRIED
- (5) $MC = (W-D) / W$ MULTIPLIED BY 100
- (6)PRINT MC

ALGORITHM TO READ TEMPERATURE

- (1)START
- (2)READ THE INPUT OF THE TEMPERATURE IN CELCIUS,"C"
- (3)READ INPUT OF THE TEMPERATURE IN FARENHEIT AS WELL, "F"

(4) $F = (9 + C) / 5 + 32$

(5)WHILE, $F < 110$

(6)FOR, $F = 86$

(7) $F < = 96$

(8) $F < = 104$

(9)PRINT THE TEMPERATURE IN FARENHEIT

ALGORITHM FOT TRIGGERING ALARM

WITH THE USE OF A SOUND SYSTEM AND LED LIGHTS (THE SOUND SYSTEM MAKES NOISE WHEN THE TANK IS VERY LOW AND WHEN THE TANK IS FULL. THEY HAVE DIFFERENT SOUNDS)

(1)START

(2)Place the LED lights and sound systems at different heights of the tank by the use of pvc pipe

(3)RED LED AND EIGHT (8) Beeps: indicating no water in tank

4) RED LED LEVEL 1: indicating water in tank is very low

(5)YELLOW LED LEVEL 2: indicating low water in tank

(6)YELLOW LED LEVEL 3: indicating 1/4 water in tank

(7)GREEN LED LEVEL 4: indicating half water in tank

(8)GREEN LED LEVEL 5: indicating more than half in beep

(9)BLUE LED AND FOUR (4) BEEPS: INDICATING THAT WATER IN IS FULL

(10)Connect each LED to each transistors and into the circuit

(11)Connect circuit to power supply

(12)Run water through tank

ALGORITHM FOR PASSWORD

- (1) INPUT LETTERED PASSWORD
- (2) LET PASSWORD = SUNNY ADE
- (2) IF PASSWORD IS CORRECT GRANT ACCESS
- (3) IF PASSWORD IS INCORRECT DENY ACCESS THEN,
- (4) INPUT PASSWORD AGAIN
- (5) AFTER 5 TRIES LOCK DEVICE

HARDWARE AND SOFTWARE FEATURES

HARDWARE:

PRESSURE GAUGE: It is used for measuring the condition of a fluid (liquid or gas) that is specified by the force that the fluid would exert, when at rest, on a unit area, such as pounds per square inch or newton's per square centimeter.

PRESSURE VALVE: they regulate and keep pressure in a particular system or circuit from reaching upper limits of tolerance for that system.

PIPES: used to drain away any water that is in the ground.

SPRINKLERS: it is used to irrigate agricultural crops, lawns, landscapes. They are also used for cooling and for the control of airborne dust.

Alarm: The alarm is used to alert authorized personnel on tasks to be done or equipment's to be replaced. Example, we have an alarm by the tank to alert staff concerning level of water in the tank

MONITOR CONSOLE: some consoles are designed for multiple purposes and can be used during other field operations such as variable rate planting or spraying.

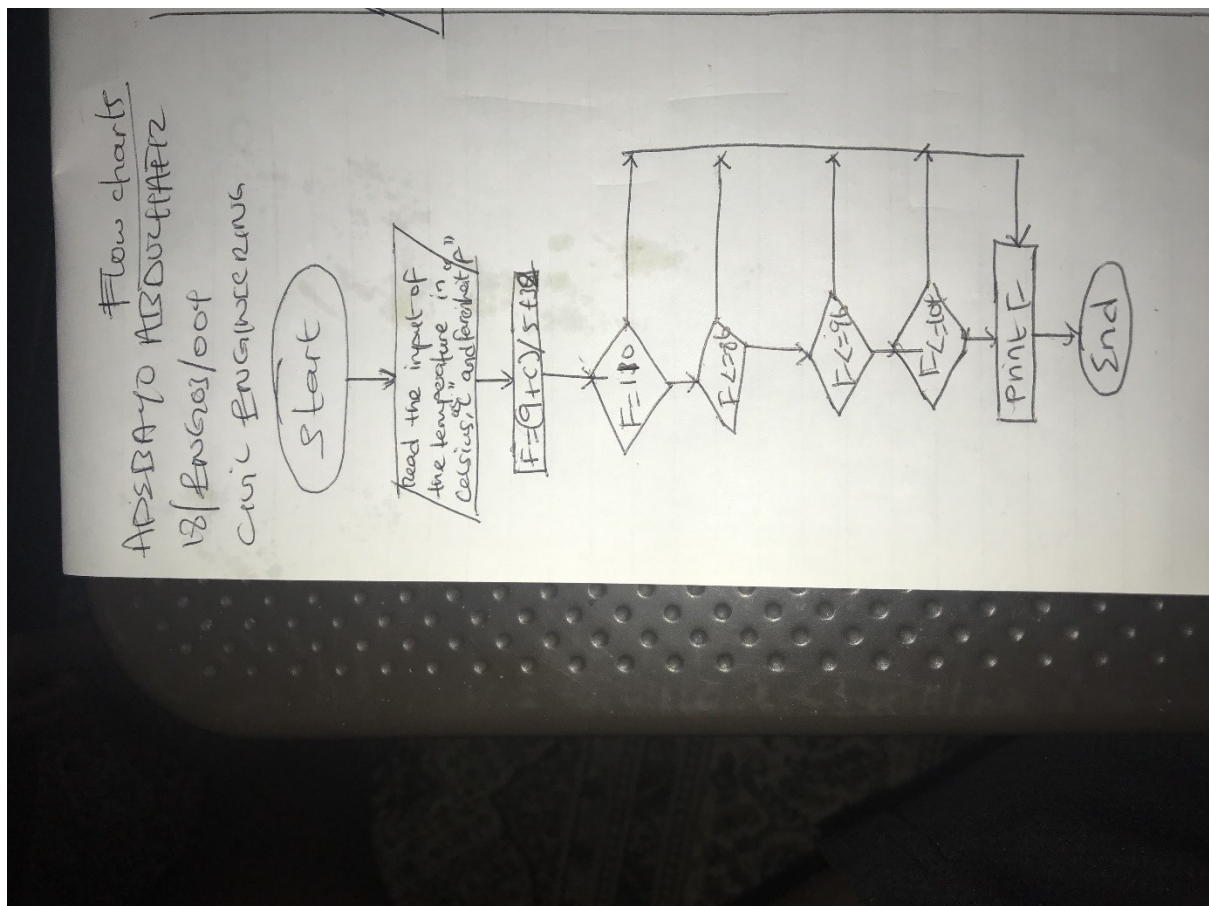
SOFTWARE FEATURES

OPERATING SYSTEM: To manage the computers resources, such as the central processing unit, memory disk drives, and printers.

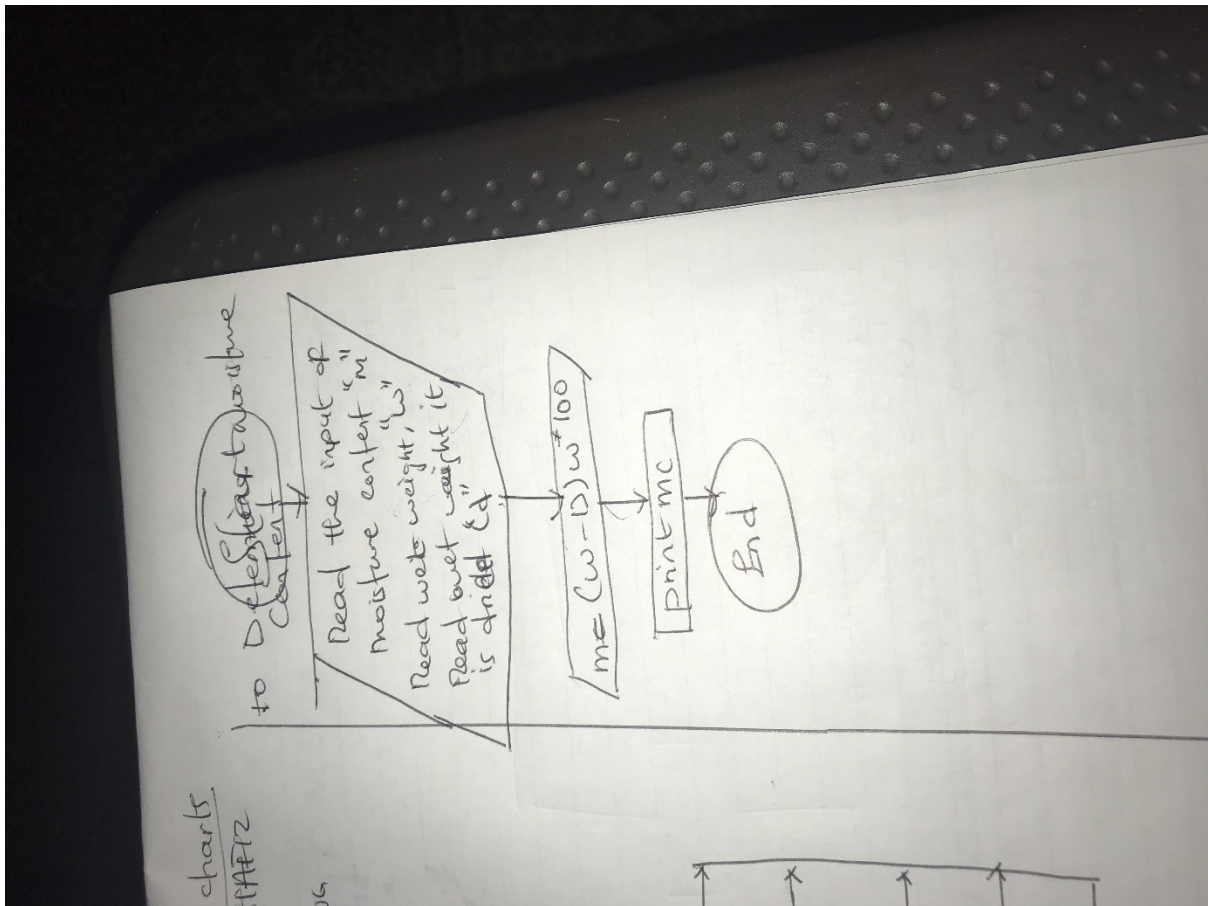
SOFTWARE APPLICATION PACKAGE:

The function of application software is to perform specific operations for various applications. These functions include writing reports, creating spreadsheets, manipulating images, keeping records, calculating expenses which be of very good use for the ABUAD farm

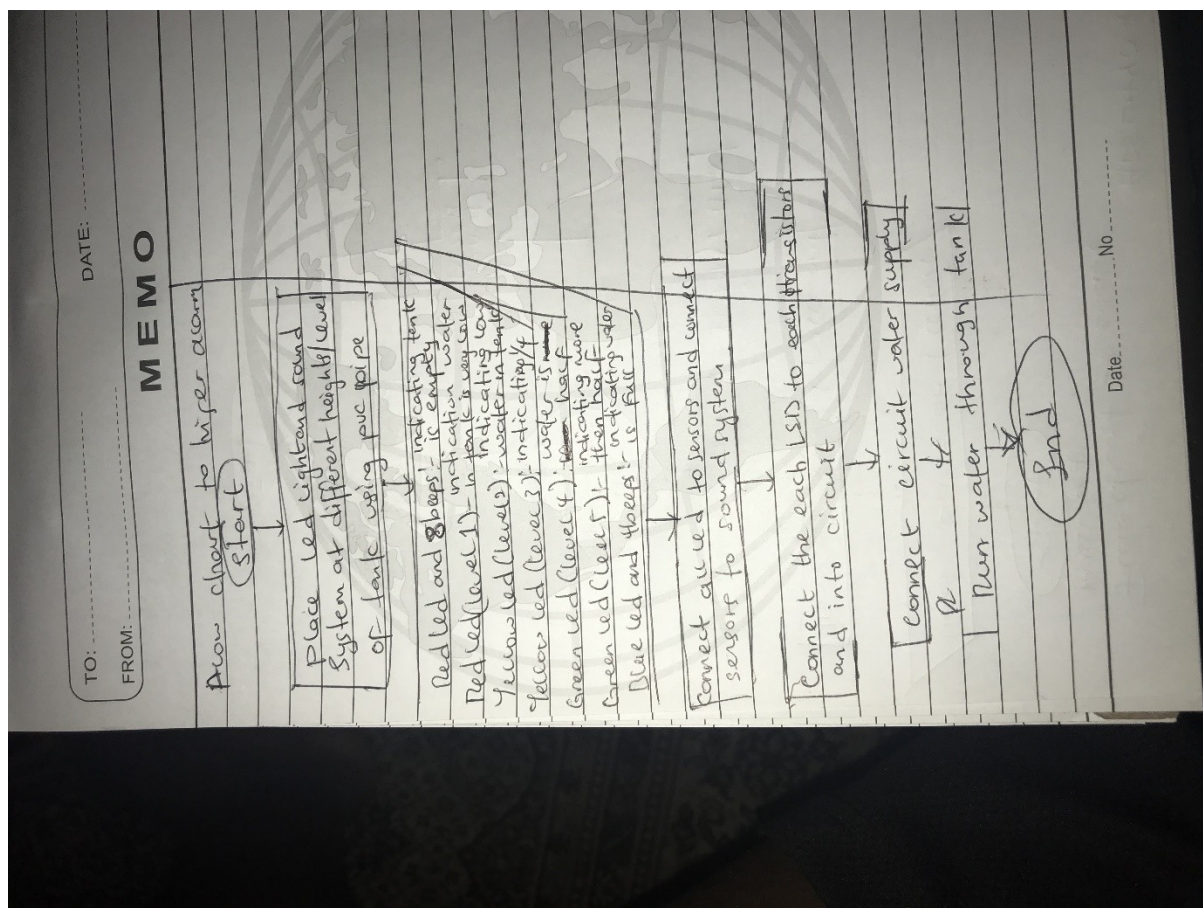
FLOWCHART FOR TEMPERATURE



FLOWCHART FOR MOISTURE CONTENT



FLOWCHART TO TRIGGER ALARM



FLOWCHART TO ENABLE PASSWORD

