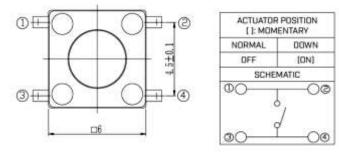
EE 2305 – Introduction to C Programming Hardware Project 02

7-Segment Display

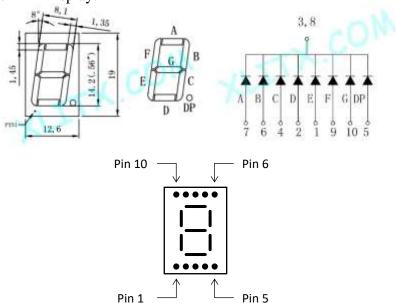
Project Features: Digital Input and Digital Output.

Program an Arduino board to accept a 4-bit binary input and display the numerical value (0 to 9) on a 7-Segment LED display.

Use the pushbutton for the digital input:



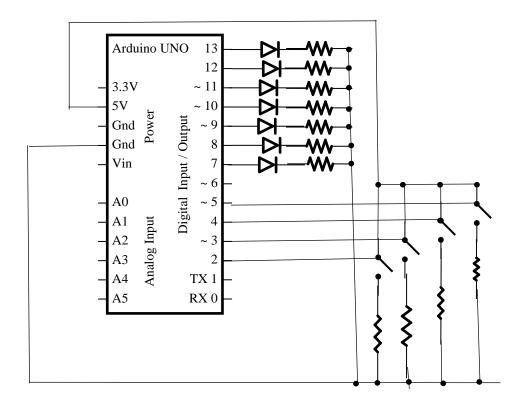
Use the 7-Segment LED Display:



To document your program, create a document and include the following sections in the document. Provide a brief description of the system and how you are designing it to operate,

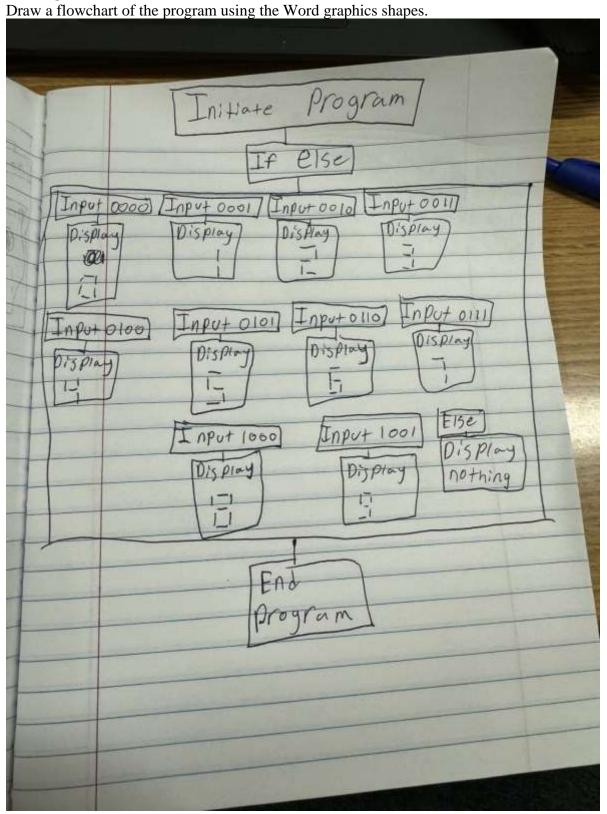
A. Hardware Diagram:

Provide a hardware diagram of the components.



Hardware Diagram

B. Program Flowchart:



C. Arduino Source Code

Insert the Arduino Source Code into the document.

```
1
                 void setup() {
      2
                       // put your setup code here, to run once:
      3
                      pinMode (13, OUTPUT);
      4
                      pinMode (12, OUTPUT);
                      pinMode (11, OUTPUT);
      5
      6
                      pinMode (10, OUTPUT);
                       pinMode (9, OUTPUT);
     8
                       pinMode (8, OUTPUT);
                      pinMode (7, OUTPUT);
     9
                      pinMode (5, INPUT);
   10
                      pinMode (4, INPUT);
   11
   12
                      pinMode (3, INPUT);
   13
                      pinMode (2, INPUT);
   14
   15
                 void loop() {
   16
   17
                       // put your main code here, to run repeatedly:
   18
                       if (!digitalRead(5) & !digitalRead(4) & !digitalRead(3) & !digitalRead(2))//0
   19
                            digitalWrite(13, HIGH);
   20
                            digitalWrite(12, HIGH);
   21
   22
                            digitalWrite(11, HIGH);
   23
                            digitalWrite(10, HIGH);
   24
                            digitalWrite(9, HIGH);
   25
                            digitalWrite(8, HIGH);
                            digitalWrite(7, LOW);
   26
   27
else_tf_([digitalHead(5) & [digitalHead(4) & [digitalHead(3) & digitalHead(2))//1
 digitalwrite(13, HGSH);
 digitalwrite(12, 10W);
 digitalwrite(11, HIGH);
digitalwrite(10, 10W);
  digitalwrite(9, 10W);
 digitalwrite(8, 100);
digitalwrite(7, 100);
wise if (!digital@od(5) & !digital@od(4) & digital@od(3) & !digital@od(2))//s
   digitalerite(1), etcs), digitalerite(12, etcs), digitalerite(11, tow), digitalerite(10, etcs), digitalerite(2, etcs), digitalerite(2, etcs);
else if (!digitalmond(5) & !digitalmond(4) & digitalmond(3) & digitalmond(2))//3
   digitalecits(13, 0000), digitalecits(12, 0000), digitalecits(11, 0000), digitalecits(20, 0000), digitalecits(0, 000), digitalecits(2, 0000)
else if (higital@end(5) & digital@end(4) & higital@end(3) & higital@end(2))//4
   digitabelte(11, wish), digitabelte(12, wish), digitabelte(11, wish), digitabelte(18, wish), digitabelte(9, wish), digitabelte(1, wish), digitabelte(2, wish), digitabelte(3, wis
else if (HigitalRend(5) & digitalRend(4) & HigitalRend(3) & digitalRend(2))//5
   digitalwrite(13, 1.00), digitalwrite(12, 4004), digitalwrite(11, 4004), digitalwrite(2, 4004), digitalwrite(9, 4004), digitalwrite(9, 4004), digitalwrite(7, 4004),
else if (IdigitalRead(5) & digitalRead(4) & digitalRead(3) & IdigitalRead(2))//6
   digitalwrite(13, 13M), digitalwrite(11, MSW), digitalwrite(11, MSW), digitalwrite(10, MSW), digitalwrite(9, MSW), digitalwrite(8, MSW), digitalwrite(7, MSW))
```

```
else if (ldigitalweed(5) & digitalweed(4) & digitalweed(2) & digitalweed(2))//?

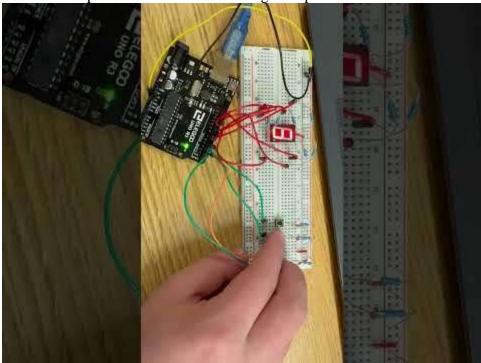
digitalweito(13, vd.W), digitalweito(13, vd.W), digitalweito(11, vd.W), digitalweito(20, v.W), digitalweito(0, v.W), digitalweito(0, v.W), digitalweito(2, v.W);

else if (digitalweed(5) & idigitalweed(4) & idigitalweed(2))//v

digitalweito(23, vd.W), digitalweed(4) & idigitalweed(2), vd.W), digitalweito(20, vd.W), digitalweed(5), vd.W), digitalweed(5), vd.W), digitalweed(5), vd.W), digitalweed(5), vd.W), digitalweed(5), vd.W), digitalweed(2), vd.W), digitalweito(2), vd.W), digitalweito(3, vd.W), digi
```

D. Demonstration Video

Record and upload a video demonstrating the operation of the circuit.



Save the document as a *PDF* file and submit the *PDF* document to *Blackboard*.