Fastest Fingers First Project Using Arduino UNO

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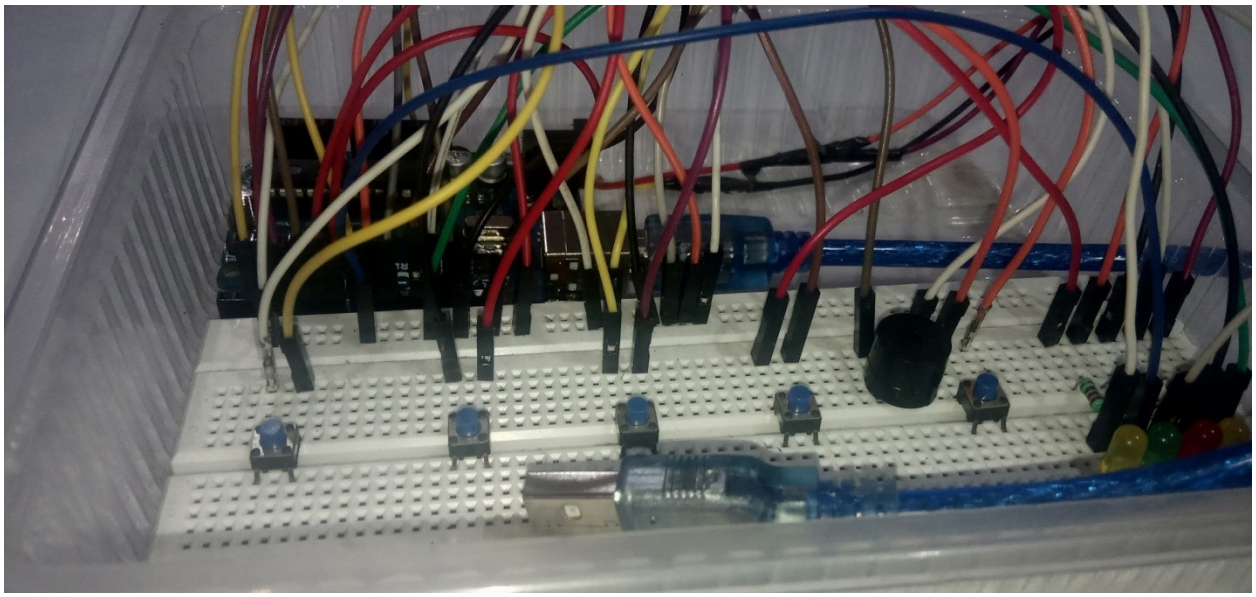
First semester project

FASTEST FINGERS FIRST PROJECT USING ARDUINO UNO

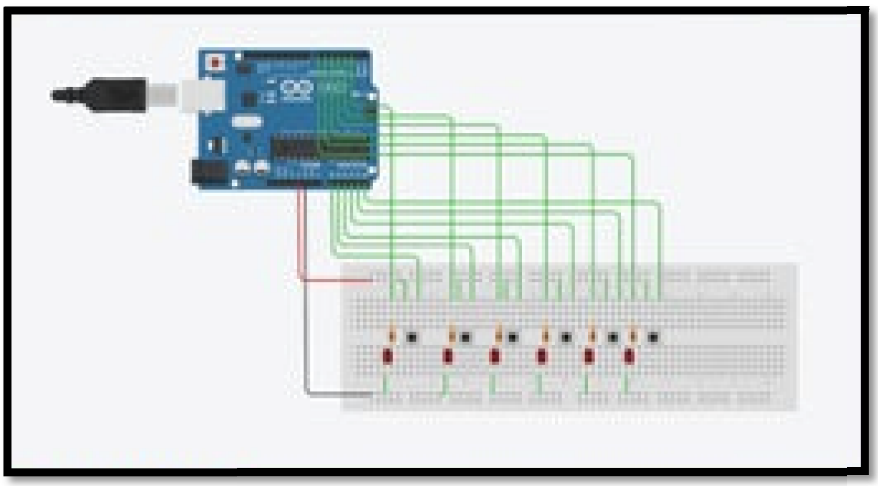
Fastest fingers first technique is used in quiz shows (with rapid fire rounds) to find the order in which participants press the buzzer (to give an answer to the question). This project is designed for four players. For real-time applications, calling-bell switches can be used over tactile switches. The power supply circuit is designed to provide +5V regulated DC voltage. In such games, **fastest finger first** indicators (FFFIs) are used to test the player's reaction time. The circuit presented here determines as to which of the four contestants **first** pressed the button and locks out the remaining three entries. Simultaneously, an audio alarm and the correct decimal number display of the corresponding contestant are activated.



Components Required

1. Arduino Uno OR You can use Node MCU as well.
2. Breadboard
3. Power supply
4. Tactile switches
5. Buzzer
6. Led (6 leds of different colors)
7. Resistor (220 ohm)
8. Jumper Wires

CIRCUIT DIAGRAM



ARDUINO UNO PROGRAMMING FOR FASTEST FINGERS FIRST PROJECT

```
#define button1 2 //the number of the button 1
#define button2 3 //button2 attach to
#define button3 4 //button3 attach to
#define button5 12 //button5 attach to
#define button4 9 //button4 attach to
#define buzzerPin 5 //the buzzer attach to
#define LED2 7 //LED2attach to
#define LED1 6 //LED1attach to
#define LED3 8 //LED3 attach to
#define LED4 10 //LED4 attach to
#define LED5 13 //LED5 attach to
#define uint8 unsigned char
uint8 flag = 0; //used to indicate the state of button4 key
uint8 b1State, b2State, b3State, b4State, b5State = 0;

void setup()
{
  //initialize buzzer,LED1, LED2, LED3, LED4 and LED5 as output
  pinMode(buzzerPin, OUTPUT);
  pinMode(LED1, OUTPUT);
  pinMode(LED2, OUTPUT);
  pinMode(LED3, OUTPUT);
  pinMode(LED4, OUTPUT);
  pinMode(LED5, OUTPUT);
  //initialize button1,button2,button3 and button4 as input,combined with pullup
  pinMode(button1, INPUT_PULLUP);
```

```
  pinMode(button2, INPUT_PULLUP);
  pinMode(button3, INPUT_PULLUP);
  pinMode(button4, INPUT_PULLUP);
  pinMode(button5, INPUT_PULLUP);
  //turn all the led off
  digitalWrite(LED1, LOW);
  digitalWrite(LED2, LOW);
  digitalWrite(LED3, LOW);
  digitalWrite(LED4, LOW);
  digitalWrite(LED5, LOW);
}
void loop()
{
  //read the state of the button4
  b4State = digitalRead(button4);
  //when button4 pressed
  if (b4State == 0)
  {
    if (b4State == 0) //confirm that the button4 is pressed
    {
      flag = 1; //if so,flag is 1
      digitalWrite(LED4, HIGH); //turn the host LED on
      delay(200);
    }
    //turn all the led off
    digitalWrite(LED1, LOW);
    digitalWrite(LED2, LOW);
    digitalWrite(LED3, LOW);
    digitalWrite(LED4, LOW);
    digitalWrite(LED5, LOW);
 }
  if (1 == flag)
  {
    //read the state of the button of buttons
    b1State = digitalRead(button1);
    b2State = digitalRead(button2);
    b3State = digitalRead(button3);
    b5State = digitalRead(button5);
//If the button1 press the first
    if (b1State == 0)
    {
      flag = 0;
      digitalWrite(LED4, LOW);
      Alarm(); //buzzer sound
      digitalWrite(LED1,HIGH);
      digitalWrite(LED2,LOW);
```

```
      digitalWrite(LED3,LOW);
      digitalWrite(LED5,LOW);
      while (digitalRead(button4));          //detect the button5,if pressed,out of the while loop
    }
    //If the button2 press the first
    if (b2State == 0)
    {
      flag = 0;
      digitalWrite(LED4,LOW);
      Alarm();
      digitalWrite(LED1,LOW);
      digitalWrite(LED2,HIGH);
      digitalWrite(LED3,LOW);
      digitalWrite(LED5,LOW);
      while (digitalRead(button4));
    }
    //If the button3 press the first
    if (b3State == 0)
    {
      flag = 0;
      digitalWrite(LED4,LOW);
      Alarm();
      digitalWrite(LED1,LOW);
      digitalWrite(LED2,LOW);
      digitalWrite(LED3,HIGH);
      digitalWrite(LED5,LOW);
      while (digitalRead(button4));
    }
   //If the button5 press the first
    if (b5State == 0)
    {
      flag = 0;
      digitalWrite(LED4,LOW);
      Alarm();
      digitalWrite(LED1,LOW);
      digitalWrite(LED2,LOW);
      digitalWrite(LED3,LOW);
      digitalWrite(LED5,HIGH);
      while (digitalRead(button4));
    }
  }
}
//buzzer sound
void Alarm()
{
  for(int i=0;i<100;i++) {
```

```
  digitalWrite(buzzerPin,HIGH); //the buzzer sound
  delay(2);
  digitalWrite(buzzerPin,LOW); //without sound
  delay(2);                    //when delay time changed,the frequency changed
}
```

APPLICATION

1 .Fastest finger first technique is used in quiz shows (with rapid fire rounds) to find the order in which participants press the buzzer (to give an answer to the question)

2. There is no argument between the contestants to answer the query.

3. The anchor can identify the **first** person easily.