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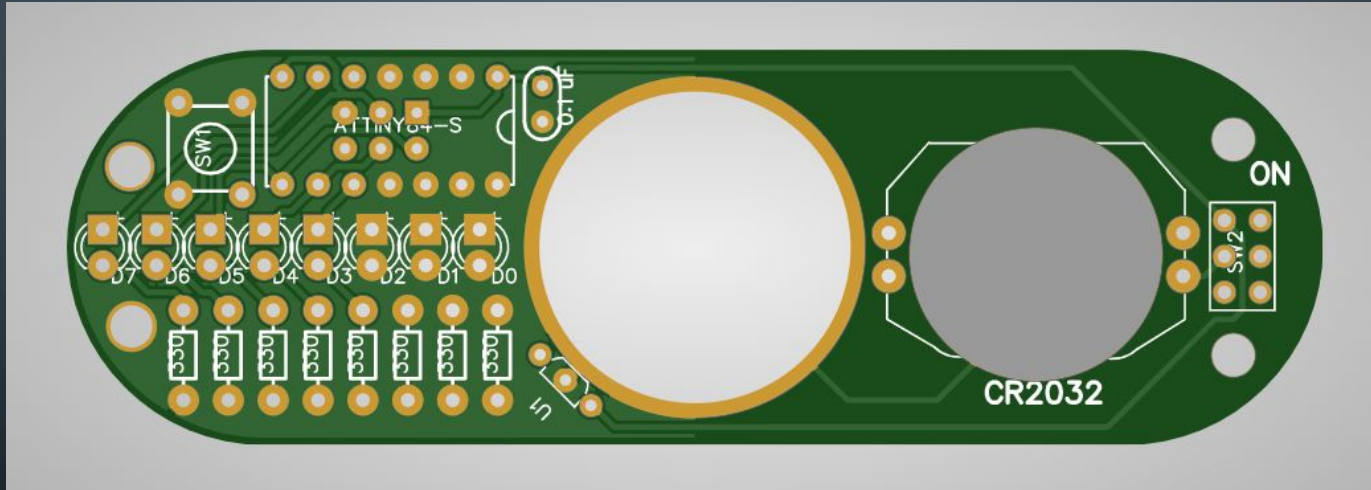
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ELECTROMANIA

ELECTROVERSE OF MADNESS

PCB Design DAY - 3: Fidget spinner, code, FUN QUIZ

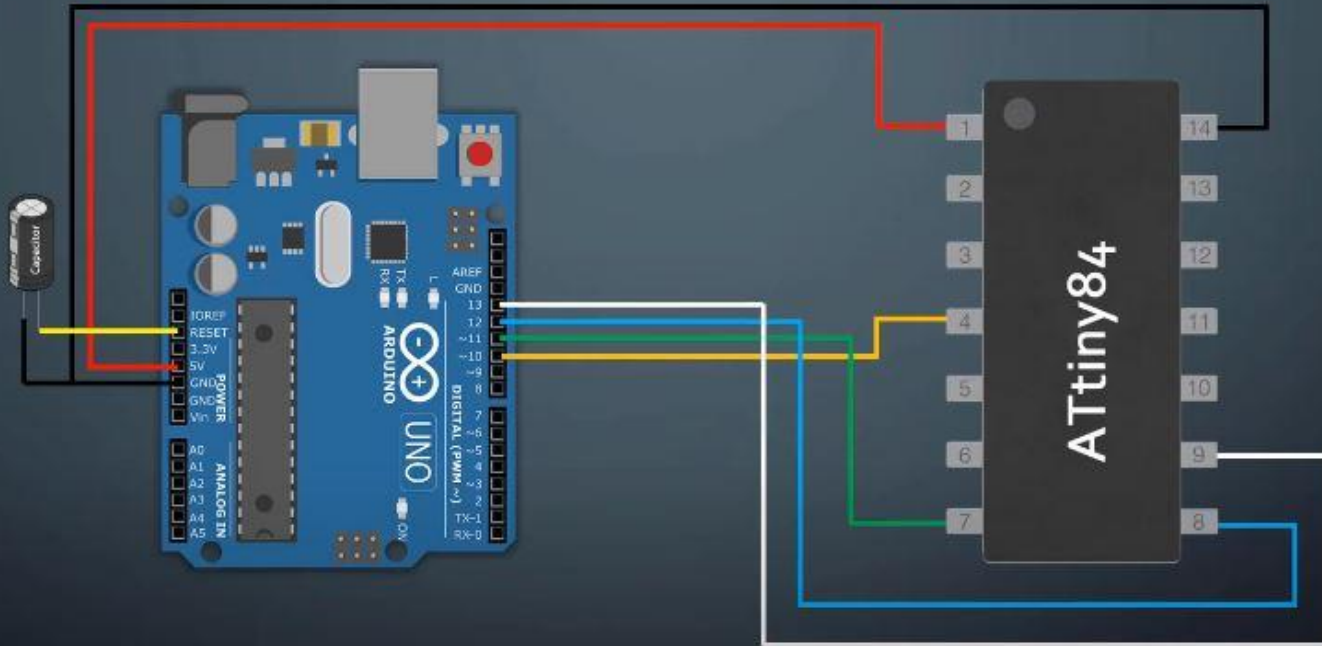
Now let's switch to Eagle to make a fidget spinner shaped PCB for our project



Now that we have finished our board, Lets see the code to be uploaded

- ❑ Install support for ATTINY:
<https://github.com/SpenceKonde/ATTinyCore>
- ❑ Upload the “Arduino as ISP sketch”
to the Arduino board of yours:[Files]
-> [Examples] -> [Arduino as ISP]

- ❑ Connect the ATTINY with your Arduino board based on the wiring below





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In the Arduino IDE Select the correct chip:

- Attiny Core: “Attiny24/44/84”
- Chip “Attiny 84”
- 8 MHz(Internal)
- Pin Mapping “Counter Clockwise”



Now we are going to **UPLOAD** the code



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Now lets see the code to upload



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```
int rows= 8; // Total LED's in a row
bool STATES[] = {LOW, LOW, LOW, LOW, LOW, LOW, LOW, LOW};
int LEDS[] = {10, 9, 8, 7, 6, 5, 4, 3}; // Port A
int length=(sizeof(LEDS)/sizeof(int));
int mode; //
int modes = 7;
void setup() {
    // put your setup code here, to run once:
    // setup inputs
    pinMode(buttonPin, INPUT_PULLUP);

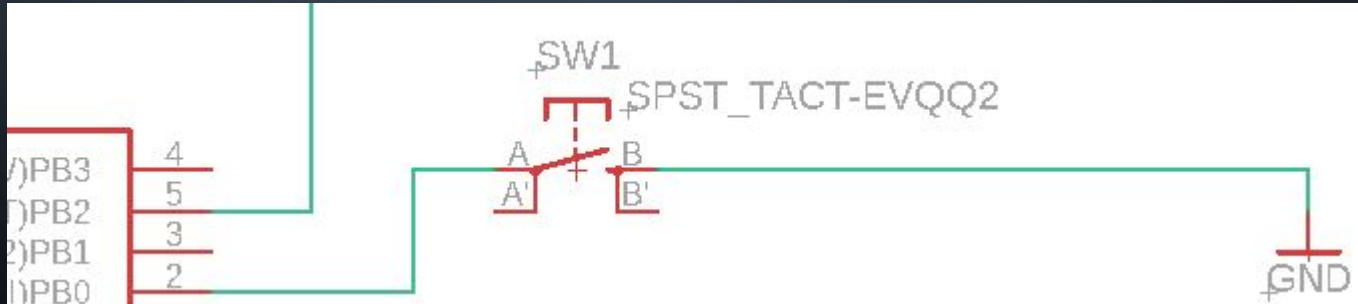
    // setup other LEDs
    for(int LED=0; LED<length; LED++){
        pinMode(LEDS[LED], OUTPUT);
        digitalWrite(LEDS[LED], STATES[LED]);
    }
}
```



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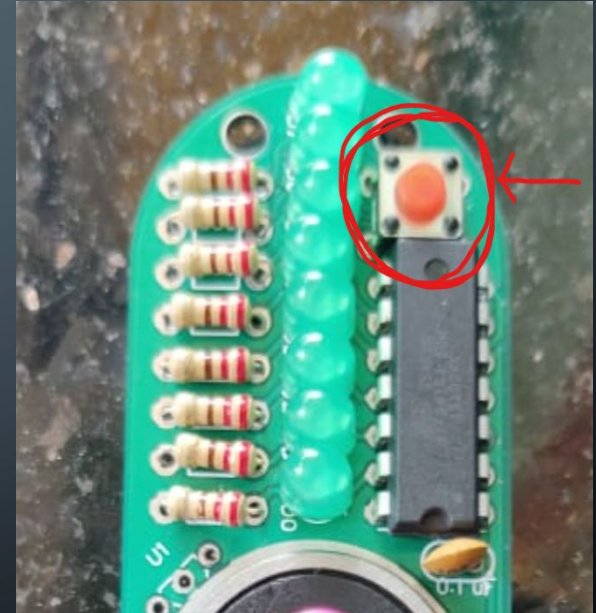
Checking
whether the
push button is
pushed

```
bool touched(){  
    // returns true if touched, false if not. Light LED until touch released  
    bool touchVal = digitalRead(buttonPin);  
    if (!touchVal){  
        while(!digitalRead(buttonPin)){ // wait till touch release  
            delay(10);  
            digitalWrite(LEDs[mode], LOW);  
        }  
        //digitalWrite(LEDs[0], LOW);  
        return (true);  
    }  
    else{  
        return (false);  
    }  
}
```



Changing of modes using push button

```
void checkButton(){  
    // check button for mode change and display current mod  
    if (touched()){  
        mode += 1;  
        if (mode >= modes){  
            mode = 0;  
        }  
    }  
}
```



Mode 0

```
void loop() {  
  checkButton();  
  
  if(mode==0){  
    for(int LED=0; LED<length; LED++){  
      if(LED%2!=0){  
        digitalWrite(LEDs[LED], HIGH);  
        delay(1);  
      }  
      else  
        digitalWrite(LEDs[LED], LOW);  
      delay(1);  
    }  
  }  
}
```





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Mode 1



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```
else if(mode==1){  
  // put your main code here, to run repeatedly:  
  for(int LED=0; LED<length; LED++){  
    digitalWrite(LEDS[LED], HIGH);  
    delay(1);  
    digitalWrite(LEDS[LED], LOW);  
  }  
  for(int LED=length-1; LED >= 0; LED--){  
    digitalWrite(LEDS[LED], HIGH);  
    delay(1);  
    digitalWrite(LEDS[LED], LOW);  
  }  
}
```



Mode 2

```
else if(mode==2){  
    for(int LED=0; LED<length; LED++){  
        digitalWrite(LEDs[LED], HIGH);  
        delay(1);  
    }  
    for(int LED=length-1; LED >= 0; LED--){  
        delay(1);  
        digitalWrite(LEDs[LED], LOW);  
    }  
}
```



Mode 3

```
else if(mode==3){  
    for(int LED=0; LED<length; LED++){  
        digitalWrite(LEDs[LED], HIGH);  
        delay(3);  
    }  
    for(int LED=0; LED<length; LED++){  
        digitalWrite(LEDs[LED], LOW);  
        delay(3);  
    }  
}
```





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```
else if(mode==4){  
    for(int LED=0; LED<length; LED++){  
        if(LED<4){  
            digitalWrite(LEDs[LED], HIGH);  
            delay(1);  
        }  
        else{  
            digitalWrite(LEDs[LED], LOW);  
            delay(1);  
        }  
    }  
    delay(10);  
    for(int LED=0; LED<length; LED++){  
        if(LED<4){  
            digitalWrite(LEDs[LED], LOW);  
            delay(1);  
        }  
        else{  
            digitalWrite(LEDs[LED], HIGH);  
            delay(1);  
        }  
    }  
}
```

Mode 4



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Mode 5



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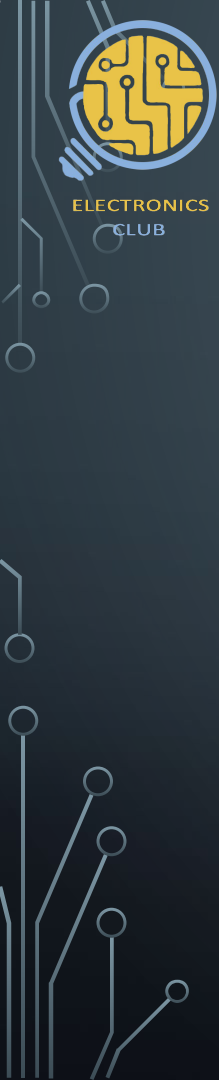
```
else if(mode==5){  
    for(int LED=0; LED<length/2; LED++){  
        digitalWrite(LEDS[LED], LOW);  
        delay(1);  
        digitalWrite(LEDS[LED], HIGH);  
    }  
    for(int LED=length-1; LED >=length/2; LED--){  
        digitalWrite(LEDS[LED], HIGH);  
        delay(1);  
        digitalWrite(LEDS[LED], LOW);  
    }  
}
```




```
else if(mode==6){
  for(int LED=0; LED<length; LED++){
    if(LED%2==0){
      digitalWrite(LEDs[LED], HIGH);
      delay(1);
    }
    else{
      if(LED==7){
        digitalWrite(LEDs[LED], HIGH);
      }
      else
        digitalWrite(LEDs[LED], LOW);
      delay(1);
    }
  }
  delay(1);
  for(int LED=0; LED<length; LED++){
    if(LED%2==0){
      digitalWrite(LEDs[LED], LOW);
      delay(1);
    }
    else{
      digitalWrite(LEDs[LED], HIGH);
      delay(1);
    }
  }
}
```

Mode 6





This is how the **LEDs** Blink (without spinning)





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This is how it looks when we **spin** it !!... Magic!



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Now.....It's Trivia Fun time now!


It is an **PCB-Design Trivia**.

You not only get to revise all the concepts taught, but also get to learn some new and cool stuff.



We'll be conducting the quiz on **Kahoot** platform

- 1) Search for '**Kahoot**' on google/any search engine
- 2) Click this website

 <https://kahoot.it>

Play Kahoot! - Enter game PIN here!

Join a game of kahoot here. Kahoot! is a free game-based learning platform that makes it fun to learn – any subject, in any language, on any device, for all ages!

- 3) Enter the **game pin** that we display on the screen now

GGs everyone!! Congratulations to the Podium finishers!

Now let's get back to our fidget spinner project!

First let's learn what is POV

We have a **Final Task** coming up for you!

We will send the PS tonight

Everyone's work will be featured on our
instagram page [#electronics_club_iitm](https://www.instagram.com/electronics_club_iitm)

NEXT UP....

Machine Learning(ML) Arena



THANK YOU!

WE HOPE TO SEE Y'ALL IN INSTI SOON!!

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