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Simple LED POV Display

DIY Arduino POV

How to Make A DIY Arduino POV LED Display With 8 LED's and an arduino using a drill to make it rotate



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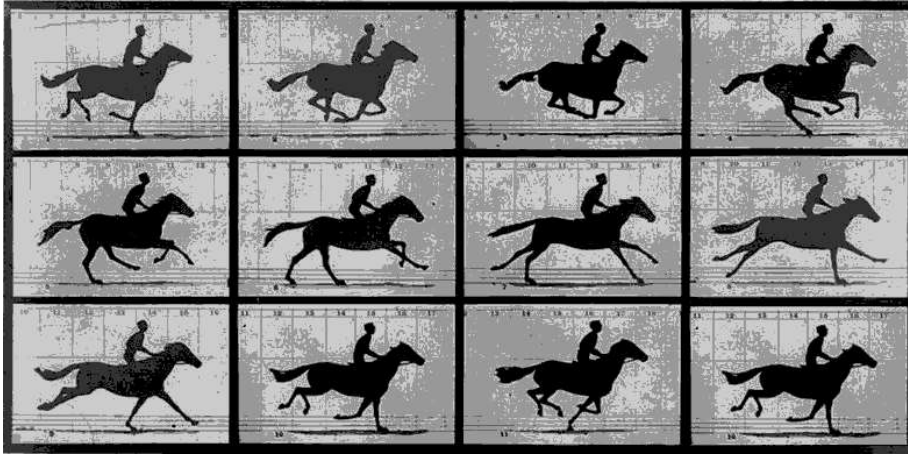
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Introduction

What is Persistence of Vision?

Persistence of vision is a kind of optical illusion whereby multiple discrete images blend into a single image in the human mind giving the impression of an animation like any .GIF animated image you see

we will use this trick to make a DIY Arduino LED POV

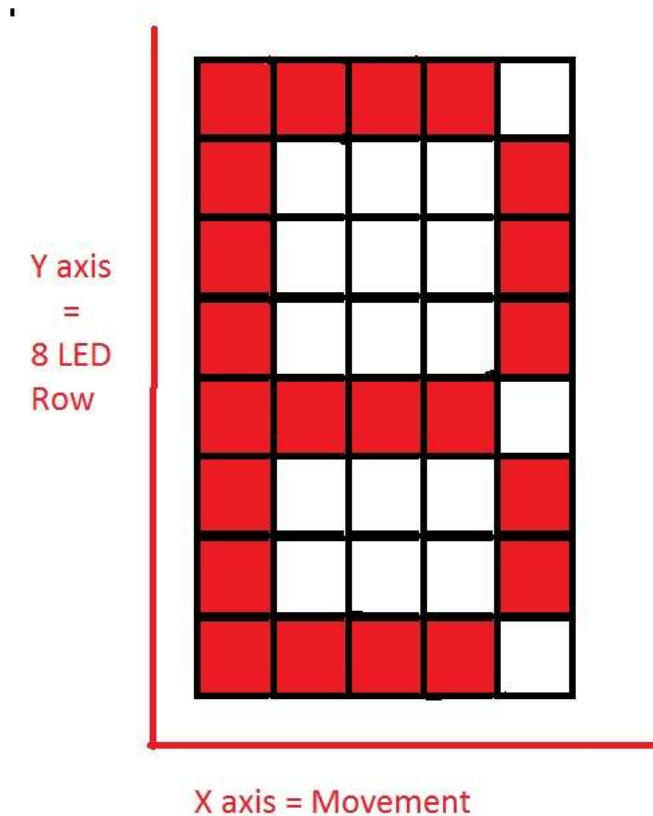


[social_warfare]

How does it work ?

we will be drawing letters in two dimensions using 8 led's with the Y axis we have the led row and the X axis is moving so by blinking the led is a certain pattern letters and words will show.

to draw the letter B we will be flashing the led's in 5 simultaneous rows making a matrix of 8x5 like the image on the right and the code in the arduino will be `B[] = {1,1,1,1,1,1,1, 1,0,0,1,0,0,0,1, 1,0,0,1,0,0,0,1, 0,1,1,0,1,1,1,0};`



Making The DIY Arduino POV

Parts Needed :

- one small piece of plastic to hold the LED's
- an arduino board
- 8 LED's and 240Ω resistors

- a 9V Battery and Some wires
- a Rotary thing to make it spin Like a Fan but i used my drill

Follow the instructions it video you will also need to upload the code to arduino and use the schematic below :

One thing more use the last loop in the code to print the letters or numbers you want and tweak Letter Space and Dot-time in the code for the best settings cause it is different for the rotation speed your chosen as fast you go as much you can write

Simple DIY LED POV display



The Arduino Code To Upload :

```
int NUMBER9[]={1,1,1,1,0,0,0,1, 1,0,0,1,0,0,0,1, 1,0,0,1,0,0,0,1,
1,0,0,1,0,0,0,1, 1,1,1,1,1,1,1,1};
int NUMBER8[]={0,1,1,0,1,1,1,0, 1,0,0,1,0,0,0,1, 1,0,0,1,0,0,0,1,
1,0,0,1,0,0,0,1, 0,1,1,0,1,1,1,0};
int NUMBER7[]={1,0,0,0,0,0,0,0, 1,0,0,0,1,0,0,0, 1,0,0,0,1,0,0,0,
1,0,0,1,1,1,1,1, 1,1,1,0,1,0,0,0};
int NUMBER6[]={1,1,1,1,1,1,1,1, 1,0,0,0,1,0,0,1, 1,0,0,0,1,0,0,1,
1,0,0,0,1,0,0,1, 1,0,0,0,1,1,1,1};
int NUMBER5[]={1,1,1,1,1,0,0,1, 1,0,0,0,1,0,0,1, 1,0,0,0,1,0,0,1,
1,0,0,0,1,0,0,1, 1,0,0,0,1,1,1,1};
int NUMBER2[]={1,0,0,0,0,0,1,1, 1,0,0,0,0,1,0,1, 1,0,0,0,1,0,0,1,
1,0,0,1,0,0,0,1, 0,1,1,0,0,0,0,1};
int NUMBER1[]={0,0,1,0,0,0,0,0, 0,1,0,0,0,0,0,0, 1,1,1,1,1,1,1,1,
0,0,0,0,0,0,0,0, 0,0,0,0,0,0,0,0};
int NUMBER0[]={1,1,1,1,1,1,1,1, 1,0,0,0,0,0,0,1, 1,0,0,0,0,0,0,1,
1,0,0,0,0,0,0,1, 1,1,1,1,1,1,1,1};
```

```

    int _[] = {0,0,0,0,0,0,0,0, 0,0,0,0,0,0,0,0, 0,0,0,0,0,0,0,0, 0,0,0,0,0,0,0,0, 0,0,0,0,0,0,0,0};
    int A[] = {1,1,1,1,1,1,1,1, 1,0,0,1,0,0,0,0, 1,0,0,1,0,0,0,0, 1,0,0,1,0,0,0,0, 1,0,0,1,0,0,0,0, 1,1,1,1,1,1,1,1};
    int B[] = {1,1,1,1,1,1,1,1, 1,0,0,1,0,0,0,1, 1,0,0,1,0,0,0,1, 1,0,0,1,0,0,0,1, 0,1,1,0,1,1,1,0};
    int C[] = {0,0,1,1,1,1,0,0, 0,1,0,0,0,0,1,0, 1,0,0,0,0,0,0,1, 1,0,0,0,0,0,0,1, 1,0,0,0,0,0,0,1, 1,0,0,0,0,0,0,1};
    int D[] = {1,1,1,1,1,1,1,1, 1,0,0,0,0,0,0,1, 1,0,0,0,0,0,0,1, 0,1,0,0,0,0,1,0, 0,0,1,1,1,1,0,0};
    int E[] = {1,1,1,1,1,1,1,1, 1,0,0,1,0,0,0,1, 1,0,0,1,0,0,0,1, 1,0,0,1,0,0,0,1, 1,0,0,1,0,0,0,1, 1,0,0,1,0,0,0,1};
    int F[] = {1,1,1,1,1,1,1,1, 1,0,0,1,0,0,0,0, 1,0,0,1,0,0,0,0, 1,0,0,1,0,0,0,0, 1,0,0,1,0,0,0,0, 1,0,0,1,0,0,0,0};
    int G[] = {0,1,1,1,1,1,1,1, 1,0,0,0,0,0,0,1, 1,0,0,0,1,0,0,1, 1,0,0,0,1,0,0,1, 1,0,0,0,1,0,0,1, 1,0,0,0,1,0,0,1};
    int H[] = {1,1,1,1,1,1,1,1, 0,0,0,0,1,0,0,0, 0,0,0,0,1,0,0,0, 0,0,0,0,1,0,0,0, 1,1,1,1,1,1,1,1, 1,1,1,1,1,1,1,1};
    int I[] = {1,0,0,0,0,0,0,1, 1,0,0,0,0,0,0,1, 1,1,1,1,1,1,1,1, 1,0,0,0,0,0,0,1, 1,0,0,0,0,0,0,1, 1,0,0,0,0,0,0,1};
    int J[] = {0,0,0,0,0,0,1,0, 0,0,0,0,1,0,0,1, 0,0,0,0,0,0,0,1, 0,0,0,0,0,0,0,1, 1,1,1,1,1,1,1,0, 1,1,1,1,1,1,1,0};
    int K[] = {1,1,1,1,1,1,1,1, 0,0,0,1,1,0,0,0, 0,0,1,0,0,1,0,0, 0,1,0,0,0,0,1,0, 1,0,0,0,0,0,0,1, 1,0,0,0,0,0,0,1};
    int L[] = {1,1,1,1,1,1,1,1, 0,0,0,0,0,0,0,1, 0,0,0,0,0,0,0,1, 0,0,0,0,0,0,0,1, 0,0,0,0,0,0,0,1, 0,0,0,0,0,0,0,1};
    int M[] = {1,1,1,1,1,1,1,1, 0,1,0,0,0,0,0,0, 0,0,1,0,0,0,0,0, 0,1,0,0,0,0,0,0, 1,1,1,1,1,1,1,1, 1,1,1,1,1,1,1,1};
    int N[] = {1,1,1,1,1,1,1,1, 0,0,1,0,0,0,0,0, 0,0,0,1,1,0,0,0, 0,0,0,0,0,1,0,0, 1,1,1,1,1,1,1,1, 1,1,1,1,1,1,1,1};
    int O[] = {0,1,1,1,1,1,1,0, 1,0,0,0,0,0,0,1, 1,0,0,0,0,0,0,1, 1,0,0,0,0,0,0,1, 0,1,1,1,1,1,1,0, 0,1,1,1,1,1,1,0};
    int P[] = {1,1,1,1,1,1,1,1, 1,0,0,1,0,0,0,0, 1,0,0,1,0,0,0,0, 1,0,0,1,0,0,0,0, 0,1,1,0,0,0,0,0, 0,1,1,0,0,0,0,0};
    int Q[] = {0,1,1,1,1,1,1,0, 1,0,0,0,0,0,0,1, 1,0,0,0,0,1,0,1, 0,1,1,1,1,1,1,0, 0,0,0,0,0,0,0,1, 0,0,0,0,0,0,0,1};
    int R[] = {1,1,1,1,1,1,1,1, 1,0,0,1,1,0,0,0, 1,0,0,1,0,1,0,0, 1,0,0,1,0,0,1,0, 0,1,1,0,0,0,0,1, 0,1,1,0,0,0,0,1};
    int S[] = {0,1,1,1,0,0,0,1, 1,0,0,0,1,0,0,1, 1,0,0,0,1,0,0,1, 1,0,0,0,1,0,0,1, 1,0,0,0,1,0,0,1, 1,0,0,0,1,0,0,1};
    int T[] = {1,0,0,0,0,0,0,0, 1,0,0,0,0,0,0,0, 1,1,1,1,1,1,1,1, 1,0,0,0,0,0,0,0, 1,0,0,0,0,0,0,0, 1,0,0,0,0,0,0,0};
    int U[] = {1,1,1,1,1,1,1,0, 0,0,0,0,0,0,0,1, 0,0,0,0,0,0,0,1, 0,0,0,0,0,0,0,1, 1,1,1,1,1,1,1,0, 1,1,1,1,1,1,1,0};
    int V[] = {1,1,1,1,1,1,1,0,0, 0,0,0,0,0,0,1,0, 0,0,0,0,0,0,0,1, 0,0,0,0,0,0,0,1, 1,1,1,1,1,1,1,0, 1,1,1,1,1,1,1,0};
    int W[] = {1,1,1,1,1,1,1,1, 0,0,0,0,0,0,1,0, 0,0,0,0,0,0,1,0,0, 0,0,0,0,0,0,1,0, 1,1,1,1,1,1,1,1, 1,1,1,1,1,1,1,1};
    int X[] = {1,1,0,0,0,0,1,1, 0,0,1,0,0,1,0,0, 0,0,0,1,1,0,0,0, 0,0,1,0,0,0,1,0, 1,1,0,0,0,0,1,0, 1,1,0,0,0,0,1,0};
    int Y[] = {1,1,0,0,0,0,0,0, 0,0,1,0,0,0,0,0, 0,0,0,1,1,1,1,1, 0,0,1,0,0,0,0,0, 1,1,0,0,0,0,0,0, 1,1,0,0,0,0,0,0};
    int Z[] = {1,0,0,0,0,1,1,1, 1,0,0,0,1,0,0,1, 1,0,0,1,0,0,0,1, 1,0,1,0,0,0,0,1, 1,1,0,0,0,0,0,1, 1,1,0,0,0,0,0,1};
    int* alpha[] = {A,B,C,D,E,F,G,H,I,J,K,L,M,N}; //T,U,V,W,X,Y,Z;
    int letterSpace;
    int dotTime;
    void setup()
    { Serial.begin(9600);
    // setting the ports of the leds to OUTPUT
    for( int i = 2; i<10 ;i++ )
    { pinMode(i, OUTPUT);
    }

    // defining the space between the letters (ms)
    letterSpace = 2;
    // defining the time dots appear (ms)
    dotTime =1;
}

void printLetter(int letter[])
{
    int y;
    // printing the first y row of the letter
    for (y=0; y<8; y++)
    {
        digitalWrite(y+2, letter[y]);
    }
}

```

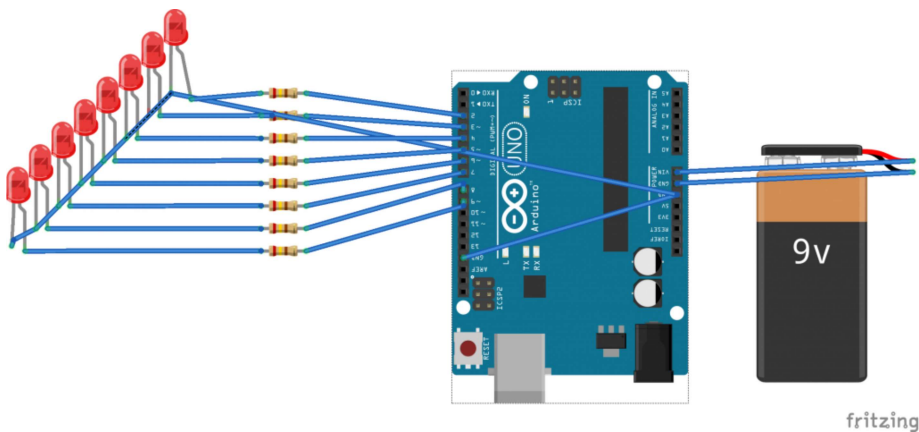
```

    delay(dotTime);
    // printing the second y row of the letter
    for (y=0; y<8; y++)
    {
        digitalWrite(y+2, letter[y+8]);
    }
    delay(dotTime);
    // printing the third y row of the letter
    for (y=0; y<8; y++)
    {
        digitalWrite(y+2, letter[y+16]);
    }
    delay(dotTime);
    for(y = 0; y<8; y++) {
        digitalWrite(y+2, letter[y+24]);
    }
    delay(dotTime);
    for(y = 0; y<8; y++) {
        digitalWrite(y+2, letter[y+32]);
    }
    delay(dotTime);
    // printing the space between the letters
    for (y=0; y<8; y++)
    {
        digitalWrite(y+2, 0);
    }
    delay(letterSpace);
}

void loop()//write here => enjoy subscribe to my channel if you like the
project
{
    printLetter (T);
    printLetter (U);
    printLetter (N);
    printLetter (M);
    printLetter (A);
    printLetter (K);
    printLetter (E);
    printLetter (R);
    printLetter (_);
}

```

The Schematic :



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