```cpp
#include <Adafruit_NeoPixel.h>

#define PIN 7
byte R, G, B;
int numPix = 16;
int goldNum;
#define buzz 8
#define trigPin 5
#define echoPin 6
#define button 3
#define change 4
long duration;
int distance;
int k;
int c;
int y;
int interval;
int buttonState = 0;
int buttonState1 = 0;
bool buttonChange = true;
unsigned long previousMillis = 0;
unsigned long previousMillis1 = 0;
unsigned long previousMillis2 = 0;

// Parameter 1 = number of pixels in strip
// Parameter 2 = pin number (most are valid)
// Parameter 3 = pixel type flags, add together as needed:
//   NEO_KHZ800  800 KHz bitstream (most NeoPixel products w/WS2812
LEDs)
//   NEO_KHZ400  400 KHz (classic 'v1' (not v2) FLORA pixels, WS2811
drivers)
//   NEO_GRB     Pixels are wired for GRB bitstream (most NeoPixel
products)
//   NEO_RGB     Pixels are wired for RGB bitstream (v1 FLORA pixels,
not v2)
Adafruit_NeoPixel strip = Adafruit_NeoPixel(numPix, PIN, NEO_GRB +
NEO_KHZ800);

void setup()
{
  pinMode(trigPin,OUTPUT);
  pinMode(echoPin,INPUT);
  pinMode(buzz,OUTPUT);
  pinMode(button,INPUT);
  pinMode(change,INPUT);
```

```cpp
  strip.begin();
  for(byte i=0; i<numPix; i++)
    strip.setPixelColor(i, 0, 0, 255);
  strip.show();
  Serial.begin(9600);

  digitalWrite(trigPin, LOW);
  delayMicroseconds(2);
  digitalWrite(trigPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(trigPin, LOW);
  duration = pulseIn(echoPin, HIGH);
  digitalWrite(trigPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(trigPin, LOW);
  duration = pulseIn(echoPin, HIGH);
  distance = duration * (0.034 / 2);

  c = (distance-2)/19.8823529;
  k = round(c);
  goldNum = 20;
  y = LOW;
}

void loop()
{
  unsigned long currentMillis = millis();
  buttonState = digitalRead(10);
  buttonState1 = digitalRead(11);

  if (buttonState1){
    buttonChange = !(buttonChange);
  }

  if((currentMillis-previousMillis) >= 100){

    previousMillis=currentMillis;

    digitalWrite(trigPin, LOW);
    delayMicroseconds(2);
    digitalWrite(trigPin, HIGH);
    delayMicroseconds(10);
    digitalWrite(trigPin, LOW);
    duration = pulseIn(echoPin, HIGH);
```

```
distance = duration * (0.034 / 2);

c = (distance-2)/21.0;//336 - 2 = 336/16
k = round(c);
if(k>16){
  k = 16;
}else if (k<0){
  k = 0;
}

interval = ((1000/16)*c)+(500);

for(byte i=0; i<numPix; i++)
{
    if (buttonChange){
    if (k == goldNum){
      if (i == k){
          R=255;
        G=0;
        B=255;
        }else{
          R=0;
          G=255;
          B=255;
        }
    }else{
    if (i == k){
          R=255;
        G=0;
        B=255;
      }else if (i == goldNum){
          R=0;
          G=255;
          B=255;
        }else{
        R=((numPix-i)*(255/numPix));
        G=((i)*(255/numPix));
        B=0;
      }
      }
    }else{
        if((k >= goldNum)&&(k <= goldNum+1)){
            if (((i>=0)&&(i<=3))||((i>=8)&&(i<=11))){
              R=0;
          G=255;
```

```
                B=255;
                    }else{
                        R=((numPix-k)*(255/numPix));
                G=((k)*(255/numPix));
                B=0;
                    }
                }else{
                  R=((numPix-k)*(255/numPix));
              G=((k)*(255/numPix));
              B=0;
                }
            }
        strip.setPixelColor(i, R, G, B);
      }
      strip.show();
    }

    if ((buttonState == HIGH)&&((currentMillis-previousMillis2)>=500)){
      previousMillis2 = currentMillis;
      if(goldNum == k){
          goldNum = 20;
      }else{
        goldNum = k;
      }
    }

    if ((currentMillis-previousMillis1)>=(interval)){
      previousMillis1=currentMillis;
      y=LOW;
      digitalWrite(buzz, y);
      Serial.println("off");
    }else
  if((y==LOW)&&((currentMillis-previousMillis1))>=(interval/2)){
      y=HIGH;
      Serial.println("on");
      if(goldNum!=k){
        digitalWrite(buzz, y);
      }
    }
  }
```