קוד פרויקט מפל עם בר לדים + חיישן מרחק

```
#include  <Adafruit_NeoPixel.h>
#define PIN 3   // input pin Neopixel is attached to
#define NUMPIXELS  8 // number of neopixels in strip
#include "TFT9341Touch.h"
tft9341touch LcdTouch (10, 9, 7, 2); //cs, dc ,tcs, tirq

Adafruit_NeoPixel pixels = Adafruit_NeoPixel(NUMPIXELS, PIN, NEO_GRB + NEO_KHZ800);

const int IN_A0 = A2; // analog input
const int IN_D0 = 5; // digital input
int value_A0;
bool value_D0;
int colorLight=10;
int ButtonColor=0;
int delayval = 100; // timing delay in milliseconds
int blueColor=0;
int greenColor=0;
int redColor=0;
const int trigPin = A5;
const int echoPin = A4;
float duration, distance;

struct Color {
  int colorNumber;    מספר הצבע //
  uint16_t  colorName;    שם הצבע//
  bool IsStormy;  האם סוער//
  int rArr[3];
  int gArr[3];
  int bArr[3];
};

Color colors[] = {
  {10, GREEN,false,{0,40,100},{255,255,255},{0,40,100}},
  {11, YELLOW, false,{225,255,255},{220,255,255},{0,15,90}},
  {12, ORANGE, true,{255,255,255},{100,150,195},{0,75,155}},
  {13, RED, true,{255,255,255},{0,0,100},{0,40,100}},
  {14, WHITE, false,{255,255,255},{255,255,255},{255,255,255}},
  {15, MAGENTA, false,{255,205,240},{0,100,210},{40,255,255}},
  {16, BLUE, true,{0,70,120},{0,70,120},{255,255,255}},
  {17, PURPLE, true,{100,150,190},{0,40,130},{205,255,255}}
};
```

```
void setup() {

 Serial.begin(9600);
 pinMode (IN_A0, INPUT);
 pinMode (IN_D0, INPUT);

 pinMode(trigPin, OUTPUT);
 pinMode(echoPin, INPUT);
 Serial.begin(9600);
 pixels.begin();

 LcdTouch.begin();
 LcdTouch.clearButton();
 LcdTouch.setRotation(0);
 LcdTouch.setTextSize (2);
 LcdTouch.setCursor (40, 40);
 LcdTouch.set(3780, 372, 489, 3811);

 screenMain();
}

void loop() {
  value_A0 = analogRead(IN_A0); // reads the analog input from the IR distance sensor
  value_D0 = digitalRead(IN_D0);// reads the digital input from the IR distance sensor
  Serial.print(" Analogue = ");
  Serial.print(value_A0);
  Serial.print("\t Digital =");
  Serial.println(value_D0);
  delay(100);

  pixels.setPixelColor(0, pixels.Color(0, 0, 0));שיהיה כבוי בהתחלה//
  pixels.show();
  uint16_t x, y;
  String str;

  if (LcdTouch.touched())
  {
    LcdTouch.readTouch();
    x = LcdTouch.xTouch;
    y = LcdTouch.yTouch;
```

```
      ButtonColor = LcdTouch.ButtonTouch(x, y);
      Serial.println(ButtonColor);

      switch (ButtonColor) {
         case 10:
          colorLight=0;
          break;
         case 11:
           colorLight=1;
           break;
         case 12:
           colorLight=2;
           break;
         case 13:
           colorLight=3;
           break;
         case 14:
           colorLight=4;
           break;
         case 15:
           colorLight=5;
           break;
         case 16:
           colorLight=6;
           break;
         case 17:
           colorLight=7;
           break;
         default:
           colorLight=10;
           break;
}
    screenMain();
  }
}
else if (ButtonNum == 2) "מים" הכפתור על לחץ אם//
  {
    screen2();
    screenMain();
  }
}
```

```
digitalWrite(trigPin, LOW);
delayMicroseconds(2);
digitalWrite(trigPin, HIGH);
delayMicroseconds(10);
digitalWrite(trigPin, LOW);

duration = pulseIn(echoPin, HIGH);
distance = (duration*.0343)/2;
Serial.print("Distance: ");
Serial.println(distance);

if (distance < 15 )
 {
  if(colorLight==10)
  {
     setColor();
     for (int i=0; i <NUMPIXELS ; i++)
     {
       pixels.setPixelColor(i, pixels.Color(redColor,greenColor,blueColor));
       pixels.show();
       delay(delayval);
     }
  }
  else
  {
    for(int j=0;j<3;j++)
    {
     redColor = colors[colorLight].rArr[j];
     greenColor = colors[colorLight].gArr[j];
     blueColor = colors[colorLight].bArr[j];
     for (int i=0; i <NUMPIXELS ; i++)
     {
          pixels.setPixelColor(i, pixels.Color(redColor,greenColor,blueColor));
          Serial.println(redColor);
          Serial.println(greenColor);
          Serial.println(blueColor);
          pixels.show();
          delay(delayval);
     }
   }
  }
 }
```

```
  else
  {

  // מכבה את הבר לדים אם אין מישהו במרחק הקרוב
    for (int i = 0; i < NUMPIXELS; i++) {
    pixels.setPixelColor(i, pixels.Color(0, 0, 0));
  }
  pixels.show();
  }
  delay(100);
}


void screenMain() {
  LcdTouch.fillScreen (BLACK);
  LcdTouch.printheb(25, 40, "מערכת השקייה אוטומטית", 2, WHITE);
  LcdTouch.drawButton(1, 15, 90 , 290, 40, 10, RED, WHITE, "הרואת", 2); // NumButton, x, y, width, height, r, Color, textcolor, label, textsize);
  LcdTouch.drawButton(2, 15,  140, 290, 40, 10, RED, WHITE, "מים", 2);
}

void screen1() {
  LcdTouch.fillScreen (BLACK);
  LcdTouch.setTextColor(WHITE);
  LcdTouch.setTextSize (1);
  LcdTouch.setCursor (45, 30);
  LcdTouch.setTextSize (3);
  LcdTouch.print ("הרואת יעבצ רחב");
  LcdTouch.drawButton(10, 15,  90, 60, 60, 10, GREEN, WHITE, "", 2);
  LcdTouch.drawButton(11, 90,  90, 60, 60, 10, YELLOW, WHITE, "", 2);
  LcdTouch.drawButton(12, 165,  90, 60, 60, 10,ORANGE , WHITE, "", 2);
  LcdTouch.drawButton(13, 240,  90, 60, 60, 10,RED , WHITE, "", 2);
  LcdTouch.drawButton(14, 15,  165, 60, 60, 10, WHITE, WHITE, "", 2);
  LcdTouch.drawButton(15, 90,  165, 60, 60, 10,MAGENTA , WHITE, "", 2);
  LcdTouch.drawButton(16, 165,  165, 60, 60, 10, BLUE, WHITE, "", 2);
  LcdTouch.drawButton(17, 240,  165, 60, 60, 10, PURPLE, WHITE, "", 2);
  while (!LcdTouch.touched());
}


void screen2() {
  LcdTouch.fillScreen (BLACK);
  LcdTouch.setTextColor(WHITE);
  LcdTouch.setCursor (30, 30);
  LcdTouch.setTextSize (2);
  LcdTouch.print ("הייקשהל מים תומכ רחב");
  LcdTouch.drawButton(20, 40,  80, 240, 40, 15, RED, WHITE, "הלודג תומכ", 2);
  LcdTouch.drawButton(21, 40,  130, 240, 40, 15, RED, WHITE, "תינוניב תומכ", 2);
  LcdTouch.drawButton(22, 40,  180, 240, 40, 15, RED, WHITE, "הנטק תומכ", 2);

  while (!LcdTouch.touched());
}

void setColor(){
  redColor = random(0, 255);
  greenColor = random(0,255);
  blueColor = random(0, 255);
}
```