**Larson Scanner Enhanced**

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**RBT173 – Introduction to Microcontrollers**

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The Larson Scanner project has been fun. I have it done in both Tinkercad and on a Breadboard. I started with 220K Ohm resistors and found that the luminosity of the different color LEDs was significantly different. I tried different resistors and found some that worked better than others. The result was three different resistors making 10 LED’s light at around the same luminosity. The resistors were 220k Ohms, 15k Ohms and 22k Ohms.

I have provided the Youtube links for both the Tinkercad and Breadboard videos. The code is from Tinkercad, but the Arduino code is only slightly different. I have provided both so you may compare, if you wish.

The Tinkercad resistors are all the same and it gives the same luminosity for all the lights.

**Tinkercad Code:**

// C++ code

//

int delayTime = 90;

int endLED = 14;

int stLED = 0;

void setup()

{

for (int i = stLED; i < endLED; i++)

{ pinMode(i, OUTPUT);

}

}

void loop()

{

for (int i = stLED; i < endLED; i++){

digitalWrite(i, HIGH);

if (i == stLED){

digitalWrite(endLED, LOW);

}

else {

digitalWrite((i - 1), LOW);

}

delay(delayTime);

}

for (int i = (endLED - 1); i >= (stLED + 1); i--){

digitalWrite(i, HIGH);

digitalWrite ((i + 1), LOW);

delay(delayTime);

}

}

**Arduino Code:**

// C++ code

//

int delayTime = 90;

int endLED = 12.;

int stLED = 2;

void setup()

{

for (int i = stLED; i < endLED; i++)

{ pinMode(i, OUTPUT);

}

}

void loop()

{

for (int i = stLED; i < endLED; i++){

digitalWrite(i, HIGH);

if (i == stLED){

digitalWrite(endLED, LOW);

} else {

digitalWrite((i - 1), LOW);

}

delay(delayTime);

}

for (int i = (endLED - 1); i >= (stLED + 1); i--){

digitalWrite(i, HIGH);

digitalWrite ((i + 1), LOW);

delay(delayTime);

}

}

<https://youtu.be/ff-gDunqYKw> - Larson Scanner Enhanced in Tinkercad

<https://youtu.be/w0mRHC_8BcE> - Larson Scanner Enhanced Live on a Breadboard