Stranger Strings

Alizé De Vroey, Suresh Sharma

Overview

The goal of the project is to recreate the wall of christmas lights from the TV show "Stranger Things", as shown in the image below.

In the show, the character "Will" uses the lights to communicate with his mother from an alternate dimension, by turning the lights on one letter at a time, in order to spell out his message.

In our project, the user can enter a String to be displayed, and the LEDs display the message one character at a time in a similar fashion.

Components Used

- Arduino Mega (due to the large number of output pins)
- 26 LEDs (Red, Green, Yellow and Blue)
- 220 Ohm Resistor

Schematic Diagram

The connection diagram for the project is given below. It shows how all the LEDs are connected to the Arduino Mega board using a single 220 Ohm resistor.

fritzing
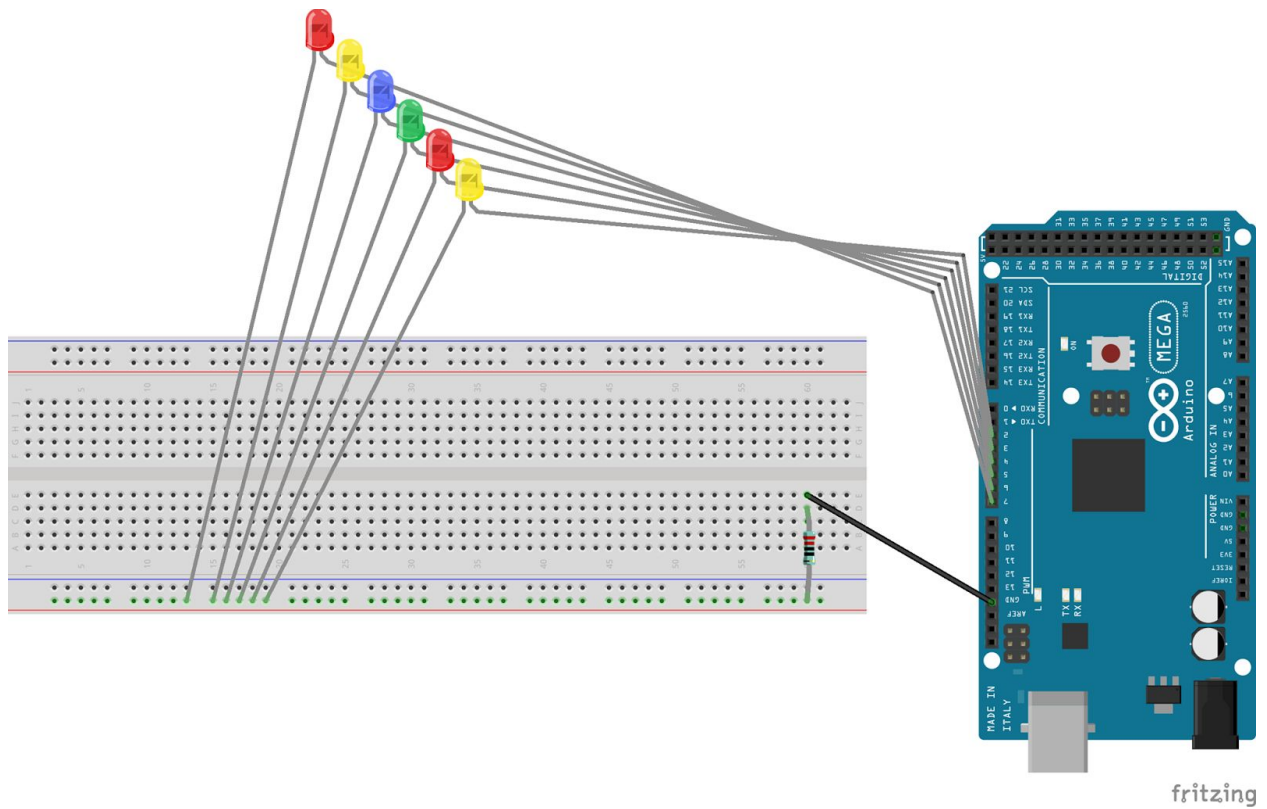
Construction Process

This was probably the most time consuming part because of the many LEDs (pins 2 to 28 on the arduino). Only one resistor is used (on the board). The cables are multistranded and we had to solder them to facilitate their plug in on the arduino.
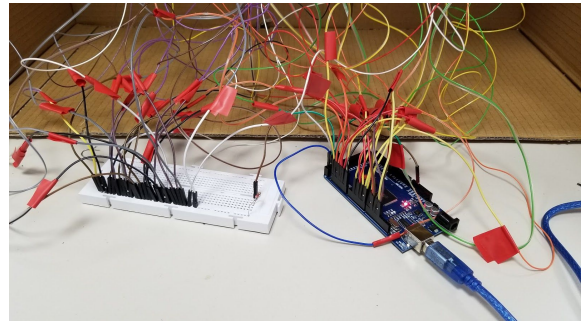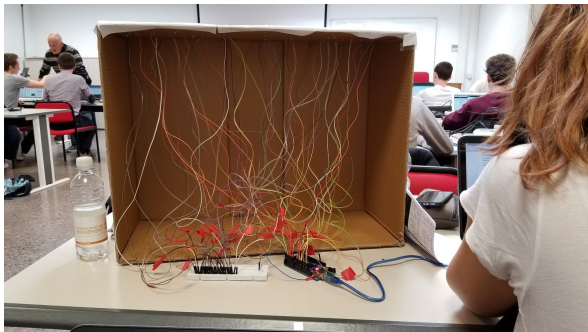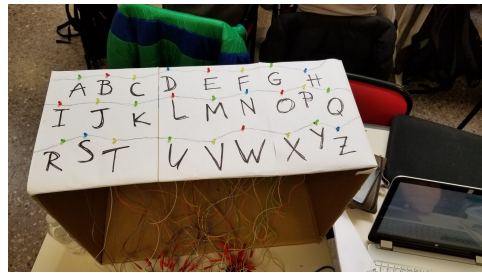
Arduino Code

The Arduino part of the code is used to receive a String input from the user and display it using the LEDs. The first part of the code checks if Serial input is available, and receives the Serial input one character at a time. It then adds the individual characters together to form a String. When the code receives a 'space' it recognizes that the word has ended and sends the String to a function called 'lightitup' where the LEDs display each letter of the word. In order to signify a space, a random pattern of LEDs is activated.

In the lightitup function, each character of the word is analysed using a Switch statement, and the corresponding LED lights up.

The entire Arduino and Processing code is available in the zip file.

Processing

We used processing to make an interactive interface, the result is shown below. The input text will appear below "Please input some text" in red. The typical background for stranger things was adapted to our project and used as a background image. Then the text is added with the right font and colours. The program should detect the words that the user writes and send them to the arduino code. For this we used the serial interface. The program sends the whole sentence as soon as the user presses enter. The coded keys are filtered out (up, down, shift,

etc). It is also programmed to delete the last part of the string if the delete key is pushed.

Reflection

We are really fond of our project but didn't really think it through when we proposed it. We forgot how much time it would take to solder all the wires and that it would become a bit messy. It took us a lot of time but after all it turned out great and we were happy that there weren't any misconnections. It would probably be better to do it with some programmable leds. We also wrote a test code to see if all the lights had a good contact, but afterwards we realized it would have been easier to just input the whole alphabet. This would have saved us time but in the end both methods work and the goal was achieved.

To conclude we would really like to thank UPM Madrid to give us this opportunity and our professors for guiding us during our fun experiment. We had a great time and learned a lot!