My name is Muhammad Asadullah Hussain and for my Arduino project, I have decided to create a morse code encoder that utilises a blinking LED as its output whilst taking input from the processing application.

Before I get into the project, I will first to talk about how I decided upon the idea as well as my development process.

I decided on a Morse code encoder as I wanted my project to be practical and usable in many situations, I also felt as if it was a good representation of a language that can be used by people with hearing difficulties, similar to sign language.

The project wasn’t too difficult initially; however, I ran into some problems when trying to get the Arduino to communicate with p5.js. I struggled to set up the required repositories from GitHub and even when I tried to do it without external packages it would not connect to the Arduino for reasons I could not figure out. Thus, I decided to use another application called processing to make my sketch. Processing proved simpler to use for my project and I was able to quickly establish the connection between the application and my Arduino. All that was left to do was alter my Arduino code as well as create code for processing and I was able to finish my project efficiently

Despite being happy with how my project turned out, I could not help but think there were possible improvements that could’ve been made such as creating an LED strip that would light up with each individual letter to better distinguish the encoded message, adding a mic that would allow the users speech to be converted into morse code or even to add a speaker to allow people to hear the encoded message in morse code as well as seeing it.

However, due to the limited capabilities of Arduino technology, using the mic would have been difficult to accurately distinguish words picked up by the mic. The led strip would have utilised too many components such as too many jumper cables and too many resistors, and finally, the speaker would be feasible, however, due to time constraints, I was not able to add that additional component to my project.

The final project itself works very simply. All you need to do once the program is running is enter the text you want to encode in the text box provided by processing, the text would then be sent to the Arduino and encoded into morse code. The encoded text would then be converted into a pattern for the LED with the dots and dashes of the Morse code governing how long the LED would light up for and spaces governing the delays between flashes.