automatic typewriter

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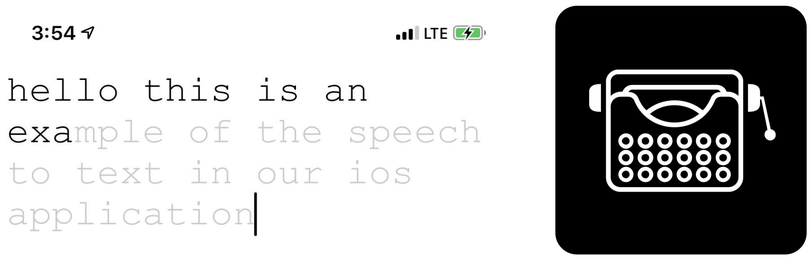
The automatic typewriter is an artistic piece that combines technology's past with its future. Typewriters were once what computing devices are today. They were in every home and office. Now, our computing devices are shifting to a new input: voice. The typewriter automatically and mechanically types what is spoken to it and communicates with a mobile application.

iOS App

The iOS app uses Apple's speech recognition services as the voice input and sends the text to the ESP32. Alternatively, a keyboard input can be used to type into the app and send text. The app communicates with the ESP32 via bluetooth and only sends one character at a time.

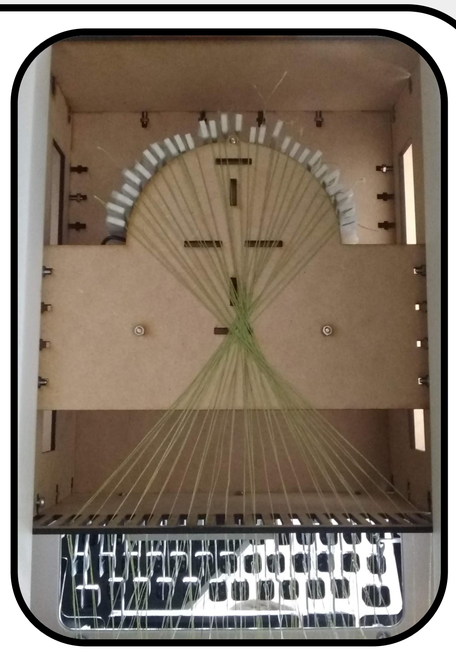
Visually, the app contains two modes: connected (light) and disconnected (dark). When shaken, the app resets the ESP32 and clears the input.

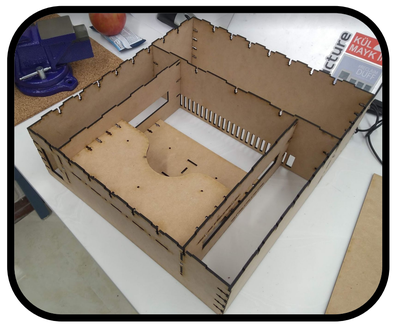


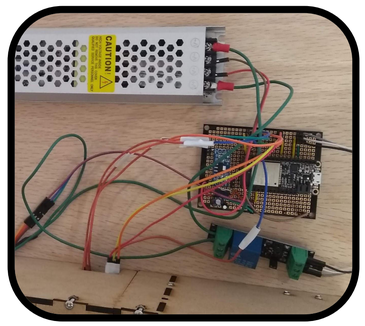
Hardware

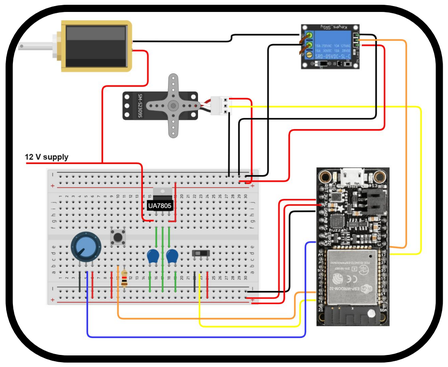
The typewriter is actuated through a series of tendons routed through the bottom of the system. Each tendon is connected to a lever which is connected to a pivot point on a curved 3D printed component.

The levers are hit by a solenoid which is resting on a servo which rotates to the right position for the intended character. Once the servo is at the proper angle, the solenoid will actuate, hitting the lever and pulling the string back, which yanks down on the typewriter key and types a character.









Challenges

Some challenges became prevalent during the prototyping of the system. For example, each string had to be tensioned tight enough so that the solenoid could punch the key, but loose enough so that the key would return to resting position. Another challenge was getting the solenoid to consistently punch the key accurately, since the levers would often shift slightly in location.

Future Work

- Accurate and reliable slapping on levers
- Expanding character set
- Implementing automatic carriage return
- Faster speed of actuation