Joynts

Making code accessible through movement ∴

Edward Stratiy, Jeyoung Park, Sania Banga, and David Gayowsky

September 17th, 2023 · Hack The North X

Motivation

- Programming is a skill for everyone, however requires typing.

- What about those with limited mobility?

- How can we make programming accessible?

Concept

- Create way to write code with reduced motion.

- Simple finger twitches can easily be translated into morse code.

- Morse can then be written into Python.

Project Breakdown
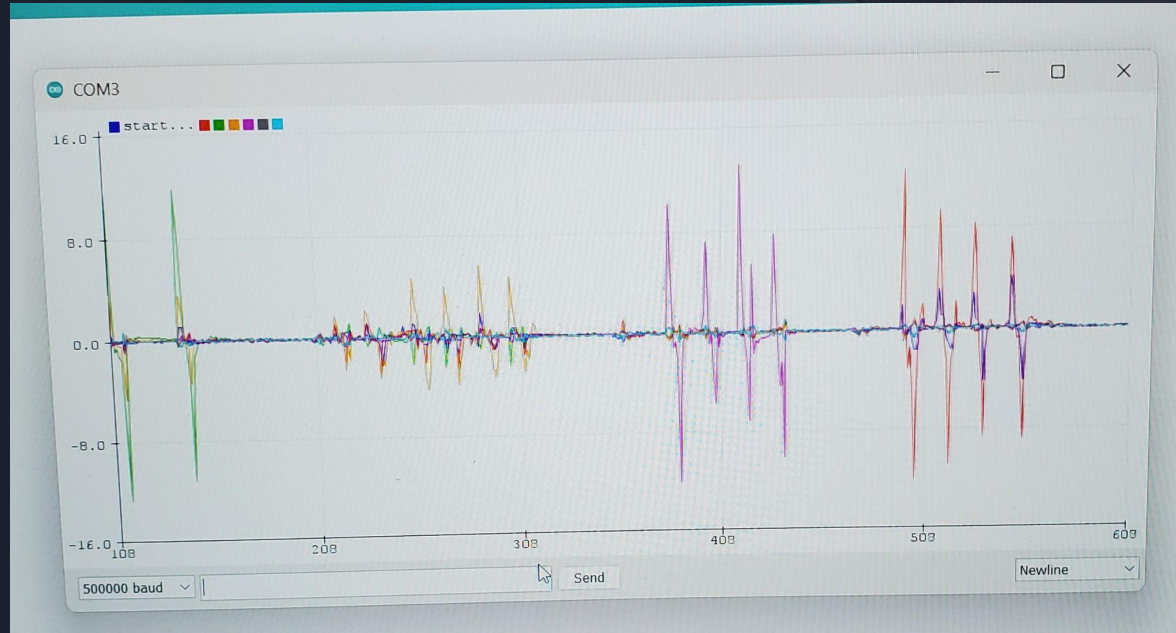
1. Movement Sensing

   Gyroscopes & Accelerometers

2. Data Scrubbing & Classification

   Movement Isolation & Recognition

3. Writing

   Specialized IDE, Translation, and Interpretation

Raw Data From Arduino

Demo

Results

- Sensors able to detect finger movement,

- Movements translated to code,

- User able to write code with only finger movements as intended.

Further Additions

1. Full deep neural network integration,

   Neural network model to expand to classification,

2. User self-training,

   Allow users of varying mobility to use wider variety of movements,

3. Additional code and language bases,

   R, C++, MATLAB, etc.

4. Lighter & more durable hardware.

Thank you for listening!

Joynts

Making code accessible through movement :·