Project Proposal

Tinkering Lab

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Group WEDG#4

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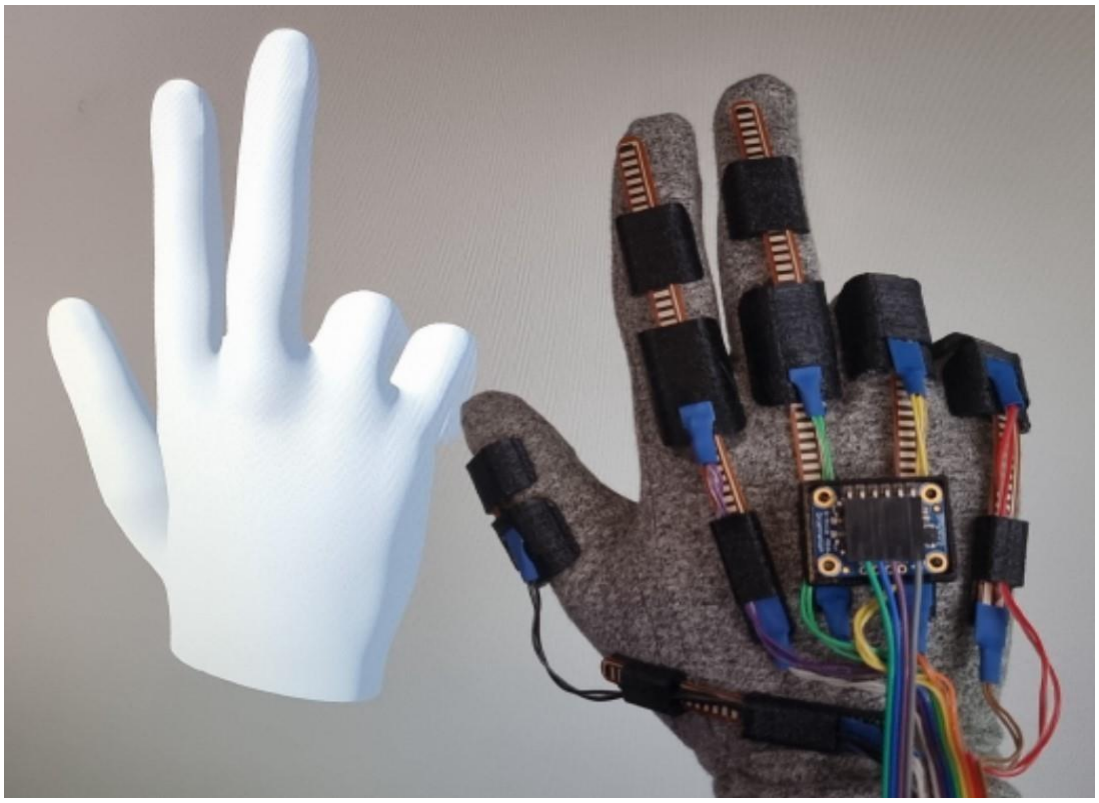
Hand Gesture PC Controller



Introduction

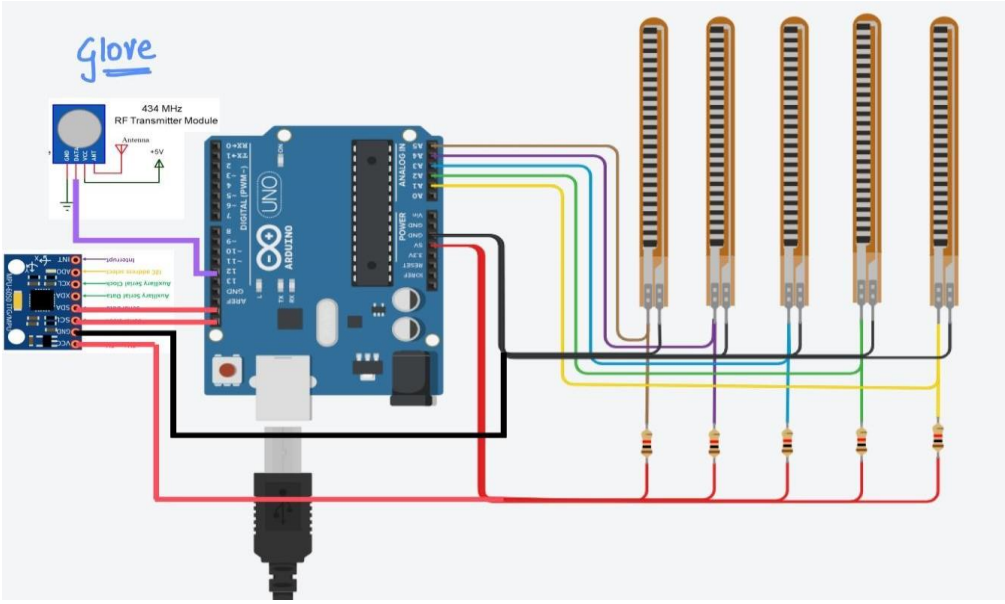
The concept behind the project is to use hand and finger movements to control a computer. Various combinations of finger and hand movements, such as tap, double-tap, slide, and so on, will be utilised to carry out various activities on the linked computer. Five flex sensors and an accelerometer will be used to record the movements.

With one microcontroller at either end of the transceiver serial bridge, the system aims to establish a wireless connection to a PC.

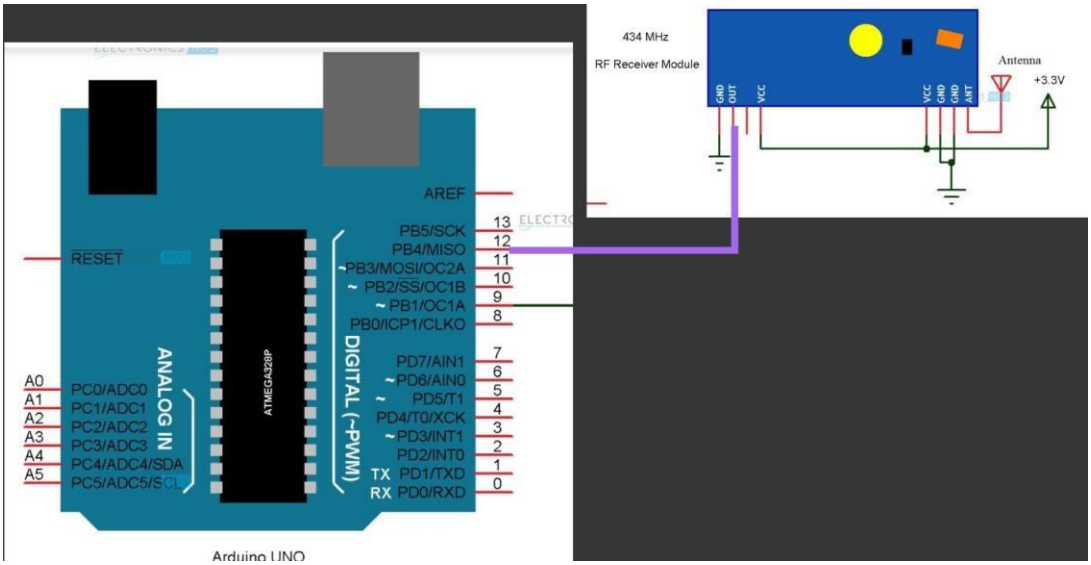
A 9V battery that is installed within the glove will supply the power. The circuit diagrams are drawn below.

Circuit Diagrams

I. Main Circuit



II. Serial Bridge



Component List

1. Glove - x1
2. ESP32 - x2
3. Flex sensors - x5
4. Accelerometer - x1
5. Transceiver (NRF24L01) - x2
6. jumper cable
7. 9V batteries
8. resistors

Use Cases

1. **Accessibility and Assistive Technology:** Hand gesture-controlled input can provide a more accessible computing experience for individuals with physical disabilities.
2. **Gaming:** Gamers can benefit from hand gesture-controlled mice to enhance their gaming experience.
3. **Presentations and Public Speaking:** When giving presentations or public speeches, a hand gesture-controlled mouse can be a powerful tool.
4. **3D Modeling and Design:** Hand gesture-controlled mice are useful in 3D modeling and design applications.
5. **Healthcare and Medical Applications:** In healthcare, hand gesture-controlled mice can be used in touchless environments to interact with electronic health records, diagnostic imaging, or other medical software.