# Remote-Robot

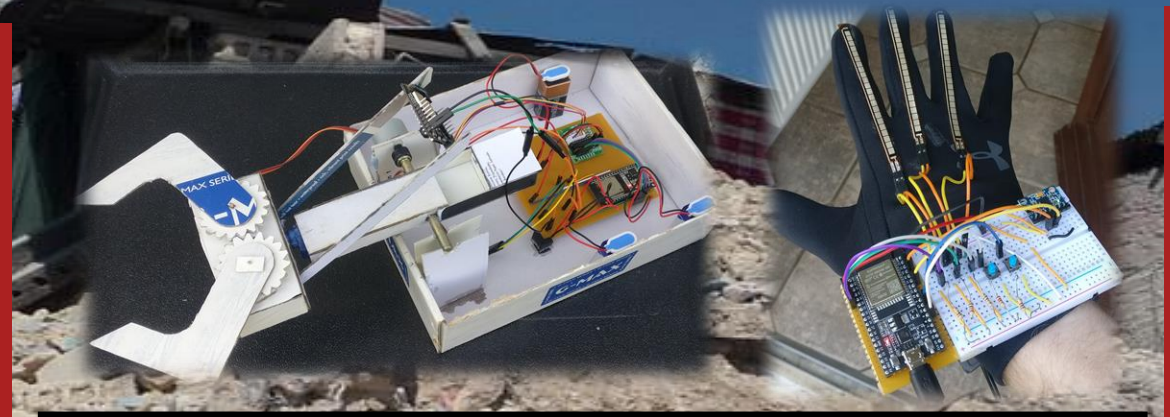
Ruairí Doherty

BEng. (Hons) in Software & Electronic Engineering

GMIT
INSTITIÚID TEICNEOLAÍOCHTA NA GAILLIMHE-MAIGH EO
GALWAY-MAYO INSTITUTE OF TECHNOLOGY

## Project Overview

The Remote-Robot is a wireless hand-gesture controlled robot which consists of two modules – the glove and robot arm. Its application is for situations where precision is required, in environments that would be unsuitable for a human. For example - bomb disposal, radioactive environments or natural disaster relief. A node.js server displays sensor data and a livestream, allowing the robot to be controlled remotely. The range of communication between the glove and robot is at least 215 metres.

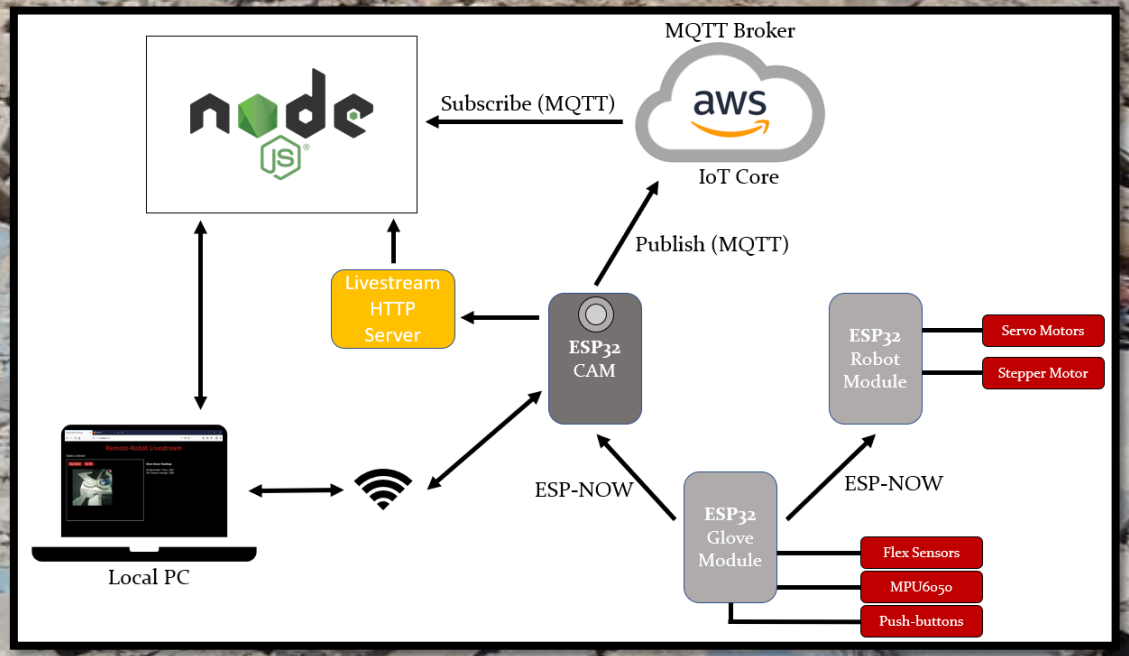


## Features

- Wireless Peer-To-Peer Communication
- Real-Time Task Synchronization
- Interrupt Pitch Control
- Node.js Livestream Server Displaying Real-Time Sensor Data

## Languages Used

- C
- JavaScript, HTML, CSS




## Hardware

- ESP32 Development Board
- Flex Sensors
- MPU6050 Accelerometer
- Servo Motors
- Stepper Motor
- ESP32 Camera Module
- Push-Buttons

## Technologies

- ESP-NOW
- Amazon FreeRTOS
- AWS IoT Core
- Node.js Express
- MQTT
- AJAX
- I2C
- PWM