



Rodrigo Figueroa (CS, Math), Carter Harrod (CS), Lord Grant Holmes (CS, Math),  
Malena Schoeni (CS, Ling), and Lord Sandy Urazayev (CS, Math, Lit)

## Description & Purpose

The project aims to help develop a new interface that integrates movement from the arms as well as eye-tracking hardware and software for improving user input in a computer system. EMG signals can be collected and analyzed from an armband. We can also use accelerometer and gyroscope sensors (and possibly other sensors as well) to provide information about the movement and orientation of the arms. We found that some of these interfaces did successfully improve our interfacing experience.

**We want to develop a system that expands the user's interactive capability of interfacing with a computer using multiple sensors.**

## Design

Our software offers an improved human-computer interactive experience by integrating devices that record and analyze data wirelessly, efficiently, and in real-time. We designed it with the following gestures with modularity in mind.

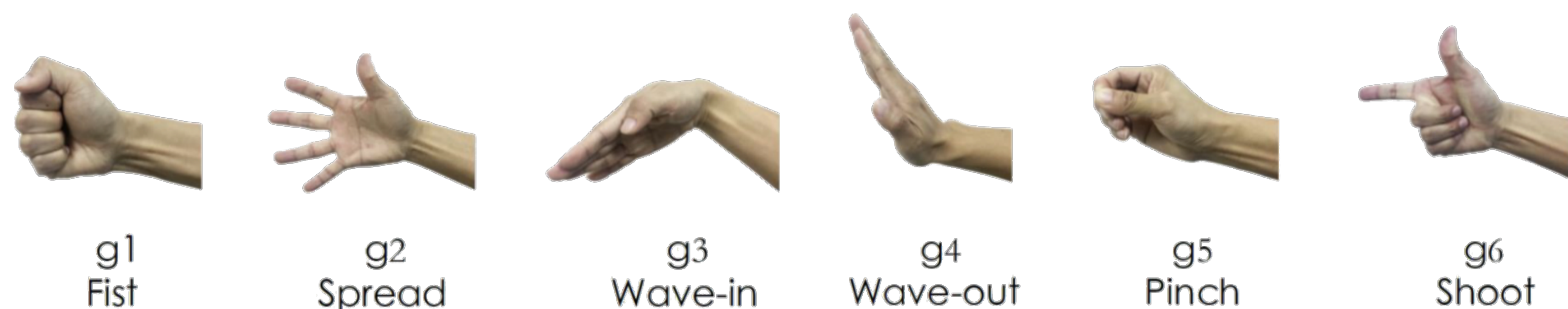


Figure 2: Example of customizable gestures that can be used on the gForcePro+

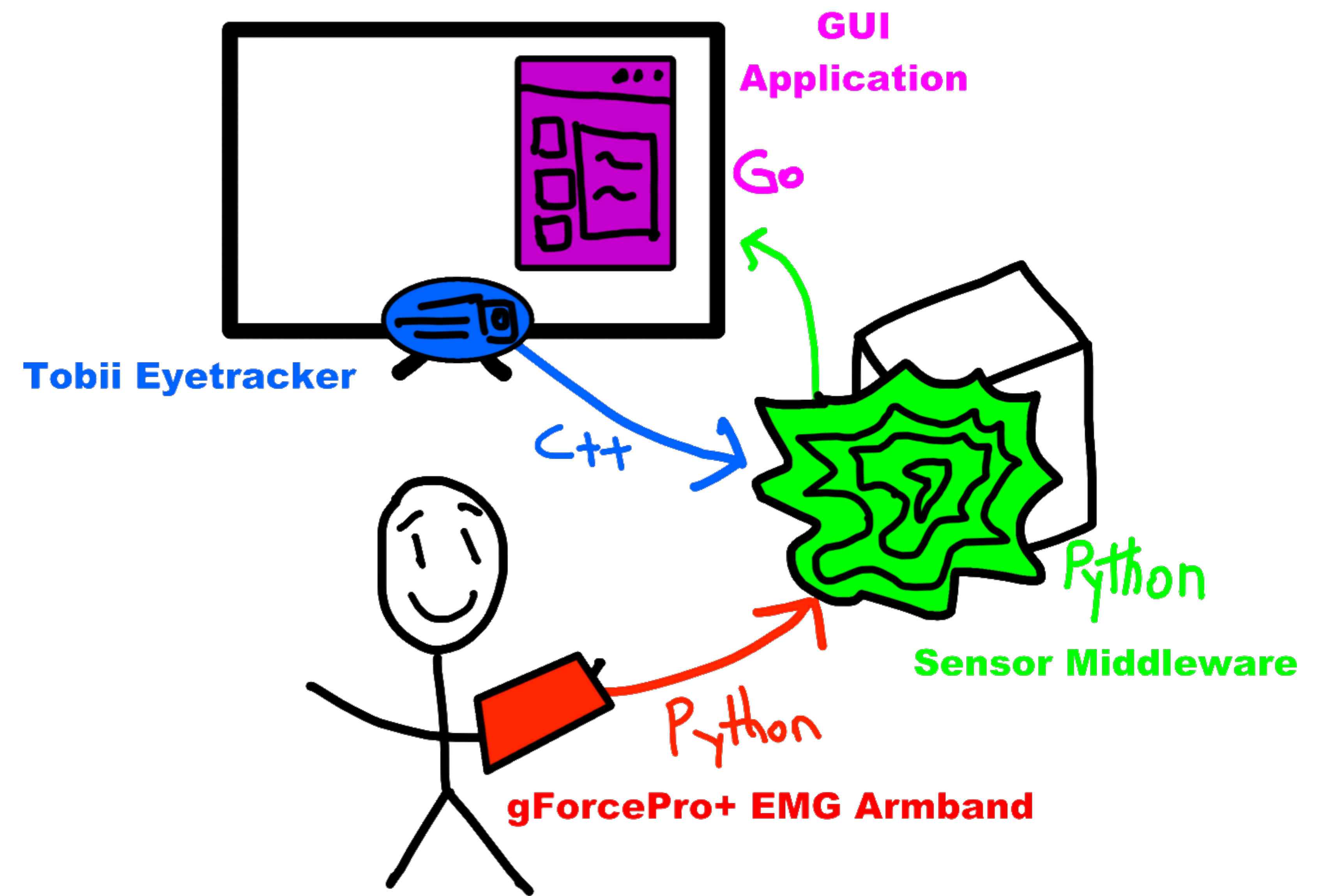


Figure 1: Interface Implementation Diagram

## Ethical & Intellectual Property Issues

- An eye tracker's eye movement data can possibly **reveal the medical conditions** of those who use our products. We keep data secure & anon.
- When using a computer and browsing web pages, eye movement can accidentally **reveal personal preferences** based on attention and other visual behaviors. We do not store or disclose any eye-tracking data.
- EMG armbands also pose similar ethical and intellectual property concerns regarding **biomedical information**.
- SDK licensing on hardware applications and scope of usage -- we strictly to adhere to these.