

Project Description

Title: GyroPalm Gesture Assisted Mechatronic Enabled Runtime (GAMER)

Overview

Edge computing, the art of performing AI-based tasks on an embedded device, is becoming increasingly popular as it drives new possibilities in the high tech industry. As robotics and mechatronics now transition to enhanced connectivity through Industry 4.0, the ability to control and monitor these devices in various environments is becoming more prominent than ever. GyroPalm is an innovative startup that features a patented wearable gesture-control system which empowers users to seamlessly control electronics, computers, appliances, IoT devices, and more with just a flick of the wrist. GyroPalm features customizable gestures using an on-board AI engine. With the latest GyroPalm wearable (GyroPalm Encore), development platform, and documentation, students are expected to explore and create environmentally-aware integrations that can enhance the safety, productivity, and efficiency of users in the workplace.

There are many unexplored opportunities in the area of environmentally-aware gesture control. For example, a GyroPalm wearable can be tasked to instruct a robotic arm or a small rover to perform a certain action (such as moving an object from one location to another) when the wearer performs a specific gesture. Students are encouraged to provide implementations for 2 or more gesture-based actions and to provide the solution on GyroPalm's GitHub repository.

Provided Resources

Throughout the project, the senior design team will have:

- Developer accounts on GyroPalm.com
- Full access to GyroPalm Cloud API
- 2 GyroPalm Encore Developer kits
- Documentation
- Technical support from GyroPalm team

Opportunity

Students will gain valuable skills writing C++ code for a wrist-worn device, knowledge of IoT, and hands-on experience with integrating seamless gesture control with a robot or environmentally-aware application.

Requirements

- Basic understanding and experience with C++ and Arduino
- Basic understanding of REST API and GitHub
- Signed Non-disclosure agreement (NDA)

