ECE180DB : Lab 5 Report

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Tasks Planned

- add emoji and additional user information to MQTT server with stop and wait ARQ to enhance chat fucntionaliuty
- integrate gesture classifier with MQTT server and create all logic necessary for controller to run
- work with team to integrate all comms and gestures with reasonable endpoints to serve as triggers in the PyQt framework

Tasks Completed

- MQTT Server
  - added color and emoji support for the server to enchance chat features
  - added gesutre detection functionality to allow for gesture data to be seperately sent and flagged as such. Also established method for tying a single controller to a single user using the UserID system implemented in our server
- Gesture detection
  - fixed IMU bug preventing non-admin users from having access to I2C readouts
  - finished rough code and began testing on a live sampler that draws on our previous models of gestures to classify data points at run time and notify the client of any relevant updates
  - integrated MQTT server aswell to give an inbuilt connection point to ensure classifier only need run
  - integrated MQTT server with thresholding classifier on kalman filtered data (ensuring that we had a functional gesture detector to be integrated with the rest of the widget)
- Integration
  - worked with team to ensure consistency with code base, and integrate all modules together
  - ensure changes reflected properly in PyQt widgets

Future Tasks

- help team with remaining threading issue in PyQT
- complete SVM classifier
  - install remaining packages since pi got bricked previously
  - run sampler on existing data base
  - modify data-base to include more gestures or remake if the live results are not what we expect
  - add kalman filtering to the loop to help ensure that the data is less noisy and will hopefully provide more distinct features