Memo: Gesture Motor Controller Project

To: Prof. Lalit Pandit
From: Jayash Arun Raulkar
Date: 10th December 2023

1. Feature Scope Changes

I would like to confirm that there have been NO changes to the feature scope outlined in the original proposal. However, during the development process, I considered implementing state machines for motor states such as clockwise, anticlockwise, and off. Ultimately, I opted for a simpler approach using if conditions in the Arduino code to control motor behavior. The decision to stick with if conditions was made for efficiency and simplicity in the context of the project's requirements.

2. What Works or Is Confident in Getting Working

I am confident in the successful implementation of the key features outlined in the original proposal. The integration of the three-axial inertial MMA sensor using the I2C protocol, UART communication to transmit sensor data, and real-time motor control based on user gestures have all been successfully realized. The GPIO pins effectively control the motors, and the system responds as expected to user inputs.

3. What Did Not Work or Required Tweaks

Fortunately, there were no significant issues or deviations from the original proposal. The project proceeded according to plan, and all components and functionalities worked seamlessly. As mentioned earlier, the consideration of using state machines was a contemplation rather than a necessity, and the final implementation with if conditions proved effective.

4. What I Learned from the Project

This project provided valuable insights into embedded software technologies, sensor integration, and communication protocols. I deepened my understanding of I2C and UART and gained practical experience in working with the KL25Z development board. The successful completion of the project reinforced my ability to design and implement complex systems in the embedded domain.

5. What Could Have Been Done Differently

In hindsight, considering the use of an external sensor could have added an extra layer of complexity and sophistication to the project. While the decision to stick with the onboard sensor aligns with the project's guidelines, exploring external sensor options could have been an interesting avenue for further exploration. This could have expanded the scope of the project and demonstrated versatility in handling different sensor configurations.

Thank you for your guidance and support throughout this project. I look forward to any feedback and suggestions for future improvements.

Sincerely,

Jayash Arun Raulkar