EE / CprE / SE 491 – sdmay25-12
Pressure Sensor Patch
Week 8 Report
October 31st, 2024 - November 7th, 2024
Client: BAE Systems, Adaptive Adventures
Faculty Advisor: Santosh Pandey

Team Members:

Aina Qistina Binti Azman - *Software Developer*
Bilal Hodzic - *Software Lead*
Nathan Turnis - *Software Developer*
Osaid Samman - *Scrum Master/Manager/Team Organization*
Sabrina Francis - *Hardware Developer*
Zane Lenz - *Hardware Developer*
Ivan Alvarado-Santoy - *Hardware Lead*

Weekly Summary

This week, the team made strong progress in hardware and software development. Work on the hardware side included testing a sensor reading program on the Raspberry Pi Pico and initiating a calibration process for accurate measurements. Research into Raspberry Pi and MicroPython documentation advanced efforts to improve sensor data collection and integrate Bluetooth. Team members further developed skills in Fusion 360, 3D printing, and Jetpack Compose for UI components, while exploring Android and iOS development tools, including Kotlin, Swift, and socket coding. Research was also conducted on streaming data solutions for potential integration.

Past Week Accomplishments

- Osaid Samman:
    - Continued to maintain contact with clients, advisor, and grad students. Kept the team organized and progressing towards the goal.
    - Looked into Bluetooth modules for hardware.
- Ivan Alvarado-Santoy:
    - Test sensor reading program on pico board using converted program from C++ to micropython
    - Start creating calibration process for reading accurate measurements in lbs
    - Research documentation of raspberry pi pico/micropython for understanding more on how to improve sensor reading data program and integrating Bluetooth
- Zane Lenz
    - Learned more fusion 360
    - Communicated with clients
    - 3D Printed more components for design

- Nathan Turnis:
    - Further investigation to Jetpack Compose
        - Testing more UI components, and learning how to structure code
    - Further learning of Kotlin
    - Learned you cannot test Bluetooth with simulated android device
        - Will need to loan a device or something
- Bilal Hodzic
    - Learning more Kotlin and Jetpack compose
    - Exploring Swift for IOS development
    - Reading up on socket coding and using sockets
    - Looked into stream analytic softwares and potential for storing streaming data from sources
        - Apache Kafka
        - RisingWave
        - Cassandra
- Aina Azman:
    - Went through the Jetpack Compose Tutorial to get a basic understanding on how to utilize the modern toolkit.
    - Looked into possible android libraries that offer real-time data graphing.
- Sabrina Francis:
    - Started re-designing sensor board in Fusion 360 to try to get it a bit smaller in size
    - Looking into raspberry pico pinout to put together another prototype

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Aina Qistina Binti Azman	Jetpack Compose & Android Studio graphing	4	35
Bilal Hodzic	Swift, Jetpack Compose, Kotlin, Streaming analytics	6	40
Nathan Turnis	Jetpack Compose & Kotlin learning	4	34
Sabrina Francis	Designing new board in Fusion 360 to be smaller	4	34
Osaid Samman	Looked into bluetooth modules for raspberry pi	5	24
Zane Lenz	3D Printing, Fusion 360	6	36
Ivan Alvarado-Santoy	Set up and test initial sensor reading program, and started calibration process for accurate and reliable measurements	10	38

Pending Issues

- Finish modeling top part of sensor brackets
- Calibrate sensors
- Integration of Bluetooth and sensor reading micropython program and testing on microcontroller

Plans For the Upcoming Week

- Prepare product design to show to the client
- Finish turtle diagram for BAE meeting