Motivation

- The use of Human Computer Interfaces allow for the development of wearable devices which offer rich feedback on the world
- Haptic displays allow the simulation of artificial touch perceptions
- This research is focused on the development of rich haptic stimulations for multidimensional feedback
- As a part of a research team, this semester focused on the implementation of wireless communications

Goals

- Implement wireless communications for existing haptic array that can be reused in future iterations
- Introduction to Arduino hardware and programming
- Introduction to wireless communications, Processing language
- Introduction to haptics
- Improving coding skills and adapting to new languages
- Develop the wireless communication between an Android tablet and the haptic array through Arduino

Progress and Troubleshooting

- Familiarized self with the Android
- Established serial communication with Arduino
- Created same communication between Arduino and Processing
- Hardware problems arose with the Bluetooth connection
  - Bluetooth module was faulty, causing debugging issues
  - Setup different wiring arrangements
- Used different codebases to try to establish connection
  - Softwares used: Processing, Arduino Serial monitor, Matlab
- Eventually was able to establish the wireless connection between Arduino and the PC
- Transitioned this knowledge to connecting the Android and the haptic array through Arduino

Acquired Skills

- Improved coding skills, more fluent in C/C++ based languages, Arduino and Processing
- Hardware setup and debugging as well as software, learned how difficult it can be to find the problem when having to consider both aspects
- Project management, setting goals to be achieved in a certain time period

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References

http://arduino.cc/
http://processing.org/