EE/Cpre 492 - sdmay21-1
Interactive Secure Headset
5th Spring Semester Report

March 15th-March 29th
Client: Cornerstone Strategies, LLC
Faculty Advisor: Dr. Rover

Team Members:

Robert Barton - *Meeting Facilitator*
Morgan Ambourn - *Meeting Scribe*
Nathan Andersen - *Report Manager*
Ehren Fox - *Chief Software Engineer*
Asa Pauls - *Chief Electrical Engineer*
Zach Johnson - *Test Engineer*

Summary of Past Two Week:

In the past two weeks we have progressed significantly towards our end goal. We finished creating the title page that you land on after connecting to your network, or if the device boots connected. In addition we have got the pi to automatically start up the simple webserver to display these pages, along with rebooting after inputting your network information. The headset casing has gone through a redesign after issues were identified with the original model. Printing is ongoing to get that second prototype. Work with controls has continued, with focus going on with the handheld controller, along with implementing the touchpad into the headset according to our client's request.

Past 2 Week Accomplishments:

- Rob
    - Wrote tiles page
    - Researched cursor placement on setup
    - Researched final presentation
- Asa
    - Fixed issue where USB devices did not work with the Pi
    - Consolidated most of the vulnerabilities we need to address into one place
- Morgan
    - Apply software updates to raspberry pi
    - Get raspberry pi to reboot upon network configuration
- Ehren
    - Redesigned front portion of headset casing to be two separate components to make it easier to assemble the hardware into the casing

    - Printed second version of headset casing and conducted an additional redesign to ensure better fit
    - Began printing what I hope is close to final design of casing
- Nathan
    - Deconstructed touchpad in preparation for designing casing for headset
    - Researched for case studies on various controls
    - Looked into vulnerabilities with input devices using 2.4GHz receivers
        - Found the Mousejack exploit
- Zach
    - Worked on password encryption for network settings.

Pending Issues:

- Rob
    - The pi doesn't have an on/off button
- Asa
    - None
- Nathan
    - None
- Ehren
    - Still have to test hardware setup and placement in the casing and redesign if necessary
- Zach
    - Having some trouble with the asynchronous nature of Javascript
- Morgan
    - On boot of the pi there are a lot of “messy” looking screens, need to change boot configurations
    - Tao and other test drivers require VPN connection which the pi currently does not allow
    - Cursor location information can be considered a security vulnerability

Individual Contributions:

Team Member	Contributions	Hours Worked	Total Hours (Sem. 2)
Robert Barton		10	47
Morgan Ambourn	Raspberry pi now reboots after network configuration updated and server is automatically	9	33

	started, loads our defined page once rebooted, , goes directly into lockdown browser		
Nathan Andersen	Checking out vulnerabilities for our input devices, disassembling and measuring touchpad, researching into case studies for input devices	11	35
Ehren Fox		12	37
Asa Pauls	Second Pi can work with USB input. Vulnerabilities in one place.	6.5	26.5
Zach Johnson		9	31

Plan for Upcoming 2 Weeks:

- Rob
    - Research pi power switches
    - Help out where needed
- Morgan
    - Update boot configurations for raspberry pi to avoid showing so many startup screens
    - Setup vpn on the raspberry pi so we can access Tao test driver
    - Randomize the starting location of the cursor on the raspberry pi
    - Update final documentation (include more specific design decisions and why we made them)
- Nathan
    - Work with morgan on looking into connecting to a VPN on the pi
    - Work with Ehren designing the casing for the touchpad
- Asa
    - Help Ehren assemble the headset
    - Finalize vulnerability list
    - Work on solutions for vulnerabilities
- Ehren
    - Finish final prototype of headset casing, and create detailed cross-section diagrams of the front portion designs
    - Test hardware setup in the casing and make sure everything fits well - redesign and print again if necessary
    - Design casing for touchpad with Nathan’s specs
- Zach
    - Use testing content to create tests in Tao
    - Finish encryption
    - Clean up some documentation and the git repository