Week 8 Report [02/19/2021 - 02/26/2021]

Objective:
- Completing new user pin module to accommodate new user registration
- Continue working on GPS modules and find a way to get the output on the console
- Working on FFT module to gain three or four distinct peaks
- Complete current user pin module and prepare it for demo
- Complete user voice input module

Problems/Tasks:

- New user Pin code algorithm,
  - Tamarr is working on it. Navid can help if needed

- FFT frequencies have been achieved but they are not the desired frequencies. It generalizes the highest magnitude peaks but not the distinct peaks. Neighboring frequencies next to distinct peaks need to be eliminated; requiring more time than expected.
  - Danny and Navid continue to work on the FFT module and fine tune it for a better result.

- When the distinct peaks components are established, what would be our accurate tolerance level for the components to the user interface
  - TBD

- Complete GPS module testing
  - Tamar will finish his testing and will update the team about his findings
  - Uzias will try to find a way to get the GPS module output in Python env

Accomplishments:

- Current user module demo completed
- Obtained one of the GPS modules specs and demoed
- Voice input/recording module completed

Week 9 Roles [02/26/2021 - 03/05/2021]

- Navid: Continue to work on the FFT module to determine how to contain the FFT distinct components only; if the FFT components are correct, perform a peak test for a user.
  - Prepare data and samples for 03/12 meeting

- Navid: Complete the weekly report and send it out by 02/26/21

- Danny: assist Navid in troubleshooting the FFT Code and testing out the comparisons of FFT analysis outside of our four team members.

- Tamarr: Work on the new user module and try to prepare it for a possible demo on 03/12

- Tamarr & Uzias: Continue to work on the purchased GPS modules to obtain proper GPS coordinates output in Python environment

- All: Review team member's contributions and results then determine the timeline for the finished project or immediate adjustments needed for the final project.

Week 7 Report [02/12/2021 - 02/19/2021]

Objective:
- Completing Pin module
- Purchase/Test GPS modules
- Working on FFT module to gain three or four distinct peaks

Problems/Tasks:

- Pin code algorithm, we need to lock the user out after three unsuccessful attempts.
  - Tamarr and Uzias modify the pin module. Navid can help if needed

- FFT frequencies have been achieved but they are not the desired frequencies. It generalizes the highest magnitude peaks but not the distinct peaks. Neighboring frequencies next to distinct peaks need to be eliminated; requiring more time than expected.
  - Navid and Danny continue to work on the FFT module and fine tune it for a better result.

- When the distinct peaks components are established, what would be our accurate tolerance level for the components to the user interface
  - TBD

- Purchase and test GPS modules
  - Tamar and Uzias will purchase and test them in the following week

- Confirm project IP with Dr.Acken and email it to Profs Faust and Greenberg
  - Navid will work on it

Accomplishments:

- GPS modules purchased by Tamarr and Uzias. They received them on 02/18.
- Prof.Jeske requested schedule draft ready and Tamarr will email it.
- Pin module can accept 4 digits pin, check for the correct length and check for int input
- Confirmed project IP and sent out the email

Week 8 Roles [02/19/2021 - 02/26/2021]

- Navid: Continue to work on the FFT module to determine how to contain the FFT distinct components only; if the FFT components are correct, perform a peak test for a user.

- Navid: Complete the weekly report and send it out by 02/19/21

- Danny: assist Navid in troubleshooting the FFT Code and testing out the comparisons of FFT analysis outside of our four team members. Danny will work on adding voice input functionality to the FFT module.

- Tamarr & Uzias: Finish the user pin module and prepare it for demo by 02/24/21.

- Tamarr & Uzias: Work on the purchased GPS modules and determine which one is the best. Try to complete by 02/24/21.

- All: Review team member's contributions and results then determine the timeline for the finished project or immediate adjustments needed for the final project.

Week 6 Report [2/5/2021 - 2/12/2021]

Objective:
- Acquiring and testing our FFT components to compare from the master database and the user interface
- Restructuring the Pincode algrothirm
- Gathering distinct peaks than simply highest magnitudes with the data and prepare better format of the peaks

Problems:
- Pincode algorithm, we need to find out about the time delay when the user make three errors into one setting; debate if we should use 10 mins
  - Possible solution: Using the mdelay to have 1 min delay, for test purposes
- Restructure our project schedule, determine ideal and reasonable adjustments for tasks and deadlines
- FFT components have been achieved but how can we store them, we accessed the memory address but not the integer component to be stored
  - The output of the FFT is strange and unclear
  - It generalize the highest magnitude peaks but not the distinct peaks
- FFT comparisons testing is our most challenging part of the project; requiring more time than expected;
  - When the components are established, what would be our accurate tolerance level for the components to the user interface

Accomplishments:
- Achieve three FFT maxim component data, draft a project schedule and obtain the GPS modules

Week 7 Roles [2/12/2021-2/19/2021]:
Navid:
- Continue to work on the FFT coding to determine how to contain the integer of the FFT components; if the FFT components are correct, perform test

Danny:
- Assist Navid in troubleshooting the FFT Code and testing out the comparisons of FFT analysis outside of our four team members.

Uzias:
- Finish basic user pin input and revise the Pincode code to include the time delay. Using the GPS module, test the components and calibrate the results with Tamarr's GPS module

Tamarr:
- Review team member's contributions and results then determine the timeline for the finished project or immediate adjustments needed for the final project.

Week 5 Report [1/29/2021 - 2/5/2021]

Objective:
- Continue to test our peaks from the master file to our test files for comparison on our FFT
- When having a certain number of peaks from the FFT analysis, what range should be used to compare at each peaks
- So far we found the highest peaks in our FFT analysis
- How can we access our GPS coordinates?

Problems:
- We analysed the peak, each trail was recognized that the frequency has a huge difference in frequency from the same. We have to understand that same user's FFT will be inconsistent by many factors such as tone, noise, and health
- Doing the comparison of FFT analysis will be taking longer than expected because of the false cases of FFT analysis
- What would be the appropriate amount of peaks to compare for accuracy?
  - Initial thought would be to have 3 peaks, however as a group we may increase the amount of peaks depending on the accuracy of matches. This still stands as the increase is up to possibly 5 peaks
- We made progress in getting maximum peaks but we did not advance further due to finishing our project proposal and getting established.

Team Member Roles [1/29/2021 - 2/5/2021]:

Tamarr
- Work on weekly reports
- Revision on the Proposal Documentation

Navid
- Project work schedule and timeline
- How to get the three highest peaks in our FFT analysis?

Danny
- Revision on the Proposal Documentation
- Research more into FFT components, what is a good range for FFT Components?

Uzias
- Continue working on research sources on GPS coordinates
- What would be the appropriate GPS module to use in our project?

Plans for next week [2/5/2021 - 2/12/2021]:
- Test out our comparisons from the initial FFT recording to the trial FFT recordings **[Continue]**
- Get the GPS coordinate and have the ability to store the coordinates

Week 4 Report [1/22/2021 - 1/29/2021]

Objective:
- Test our peaks from the master file to our test files for comparison on our FFT
- When having a certain number of peaks from the FFT analysis, what range should be used to compare at each peaks

Problems:
- What would be the appropriate amount of peaks to compare for accuracy?
  - Initial thought would be to have 3 peaks, however as a group we may increase the amount of peaks depending on the accuracy of matches
- How are we going to compare when we add new users?
  - Possible Solution: Prompt the user to record a phase and pin
  - Once prompted, the phase and pin will be saved and stored
- How can we access accurate GPS coordinates?
  - Solution: Consider to have a GPS module to get the data

Team Member Roles:

Tamarr
- Work on weekly reports
- Revision on the Proposal Documentation
- Research more into FFT components

Navid
- Continue working on the CONOPS
- Project work schedule and timeline

Danny
- Revision on the Proposal Documentation
- Research more into FFT components

Uzias
- Continue working on research sources on GPS coordinates
- Project work schedule and timeline

Plans for next week [1/29/2021 - 2/5/2021]:
- Finish our project proposal
- Test out our comparisons from the initial FFT recording to the trial FFT recordings

Week 3 Report [1/22/2021] Our Takeaways

- Our goals is to focus on our project proposal, ideally finish by the end of the month
  - Read the thesis again sent from Dr. Acken by Monday
  - Email Professor Jeske about meeting times next week
  -
- Gather all members FFT recordings
- On Wednesday 1/20/2021 we review our current proposal and made revisions •
Our team has divided roles on PDS worksheet
  - Navid: Concepts of operations
  - Uzias: Deliverables
  - Tamarr: Requirements, project management plan
  - Danny: Stakeholders, needs statement objective statement, budget of project management, initial project design

Next Week [Week 4 1/29/2021]

- In next advisor meeting, ask about needs statement
    - also ask about requirements of gps/mic as we aren't building a device • what other deliverables Dr.Acken would like
    - what frequency range should we include
- Development of our project proposal

Problem
- We received advice from Dr. Greenburg about GPS coordinates
  - Laptops don't have GPS receivers
  - Google API services do not provide GPS coordinates, however they provide geographical location
- We need to know about anything GPS module to get and receive coordinates

Week 2 Report [01/15/2021] Our Takeaways

• Ask advisor/Acken on presentation about how to demo. should we have multiple people demonstrate in order to show that it can correctly authenticate multiple unique users

• Possibly make recording of demo if for any reason we are not able to perform live

• Navid created basic program of examining audio file in python to perform an FFT

• Next meeting should begin discussing project proposal

• Could make Friday time slots of 412 for quick team meetings or check ins

• Plans to make project schedule after completing proposal as it gives the team a better idea of what needs to be done, when it should be done

• February 12: project proposal due and present in 412

• Goals :

o Work on PDS

o continue research of how to approach project specifically

    voice intake

    authenticating users

    how to receive GPS location and output

• Discussed Anaconda installation/config to run our Python Code

• Initiated a doc for description/formulation of the problem (requested by our advisor)

• Discussed FFT and possible solution for authentication

• Uzias has started going over our DPS

• Navid is debugging fft.py code (Having problem computing and graphing the FFT)

• Researching on how to get GPS coordinates

• research fft more

o output is amplitude of various frequencies

• spectrum of frequency amplitude

• locate peaks

• need to start formulation of the problem

• the multi factor authentication creates greater security

• high security level with many great factors that are independent of each other

• info

• biometrics

• location

• problem statement ; how are we able to have high level of secure access

• need to examine multiple peaks of frequencies.

• have a wider range for the frequency bands

• fft, compare magnitudes and frequencies together to attempt to find a match

• part of the problem is how to compare the frequency components in order to find match

• study noise, how to restrict noise from the data/filter

• suggestion from jeske ; take a ton of samples and study the spectrum taken. acken suggests 16 plots. 4 each

- look at the plots taken and determine how many peaks should be taken
- suggestion from jeske ; have phrase be "hello, 'name'" and examine how the same phrase may be different based on who is saying it
- should conduct more tests before going into a certain idea
- we have been making decisions BEFORE looking at data and should be doing otherwise
- jeske would like to know who is doing what or who is leading what specific task
- description should be clear and concise. explanation is becoming very convoluted
- initial weekly report is fine, but would be good to add in what roles each teammate is doing
- keep all reports all in one document
- should all complete individual fft samples by monday; phrase "hello python"
- have anaconda to code python

Next Week [1/22/2021]

- We as a group need to plan how to properly state our problem statement.
- Test out our voice frequency from each person
  o Each person says "Hello Python"
  o Each person says "This is [Name]
  o From the results, we will make comparisons of the plot to understand each person's peak
- Roles
  o Each person will be testing a sample from their FFT results
  o Tamarr continue to do check ins with everyone's role, work on weekly reports, revise on the C problem on user pin security.
  o Navid took care of test out the FFT plots, translated the pin code algorithm into python
  o Danny continues to learn about python scripts and make development on the FFT python scripts of FFT
  o Uzias is learning and researching proper libraries and function of GPS coordinates
  o Further planning onto the our project schedule

Problem
- Concern on finding the proper software for each deliverable.
  o FFT accuracy, false positives
  o Proper and accurate GPS coordinates
- Having a specific and simple problem statement

Week 1 Report [01/08/2021] Our Takeaways

•   Team decided to work on purely software based project but may switch over to building a device depending on difficulties and other factors

•   Possible Programming Languages Discussed

 ○ C

 ○ Python

•   Tamarr has created a basic starting program in C for the new/current user and for the pin as discussed in the high level design

•   Research methods or possibilities in order to solve/approach the other factors for authentication

 o From MATLAB site, able to have C and MATLAB interact with each other. Can use MATLAB to conduct FFT analysis for us

 o Article on FFT and using it in Python that has a library for it

•   As a group we need to study computer languages and proper libraries to use in order to have GPS coordinates and storing voice recognition

•   Goals discussed at the end of the meeting

 ○ Research how to go about the GPS part of the project; how to access GPS location and use that through our code

 ○ Continue looking into how to approach the FFT with the recordings of our voices and how to store relevant info along with the username and their pin into a single file

•   Just on Friday, we got some suggestions that it could be easier to use python as it has proper libraries to support GPS coordinates, and proper storing for voice recognition

Next Week [Week 2 1/15/2020]

- ● Our plan are to conduct a proper schedule for the team
- ● Construct each team's specific roles
- ● Find the proper libraries and software for the project
- ● A possibility to switch into using Python language as our source

Problem

- ● It will require time to learn about different languages and how it is applied
- ● What software is useful for our objectives?
- ● Make sure everyone have the same software abilities from their computers