

SE/EE/CPRE 491

Project Title: Economic Home Security System

Group No: 42

SD-MAY20- Group 42

# Weekly Report 3

## TEAM MEMBERS:

Uma Abu

Andrew Tran

Sohum Sawant

Kamini Saldanha

Merin Mundt

Lucas Jedlicka - Project Lead

**Weekly Summary:** We met with our client and faculty advisor who gave us some tasks to accomplish for the week.

## Past Week Accomplishment:

Initially, we thought we were behind on schedule and thought that we needed to start writing some actual code for our application. So, we started to design our database and showed it to our advisor to get his opinion on it before we started coding.

However, after meeting with our advisor, we found gaps in our design which hinted at a need to create a more detailed and simple end-to-end scenario for our application. Once we accomplished this, we would be able to find more goals and limitations to look out for in our design.

We came up with the following requirements and explanations:

1. Camera streaming
2. Detect motion in frame
  - a. **Why?** Economic use of bandwidth.
3. Continue streaming until backend sends kill signal
  - a. **Why?** Client will look for change in pixels in environment which could mean potential movement. The backend will clarify if this is in fact a human. When the human leaves the frame, the backend will send a kill signal to stop streaming.
4. Push notification to user
  - a. **Why?** As soon we get 1 valuable frame of object of interest detection
5. After viewing ask user if clip should be saved
  - a. **Why?** Save space by not saving all clips.

- b. **Why not save all clips?** It is beyond the scope of the project to classify undetected objects, classification and developing machine learning takes far too long for a senior design project.
- 6. Store clip when unseen by user and stream ends.
  - a. **Why?** For later use by the user to verify the object of interest did no harm.

Computer request paraphrased:

Lucas:

8-16 GB of ram (Django server, file server, and PostgreSQL DB may be memory hungry)

An SSD boot/program drive (128/256 GB is fine)

A HDD for a file server running on the machine (1TB should be fine)

And something to be kept in mind for further down the line - A PSU/motherboard capable of supporting an Nvidia GPU with CUDA 3.5 Compute capability or greater with an estimated requirement for 3GB of VRAM. GTX 1050 3GB consumes 75W for reference.

ETG:

We have some spare computers and hard drives that should meet these needs. The only issue would be the CUDA card that you may be getting in the future.

**Pending Issues:**

- Upcoming design document needs to be created.
- More end-to-end scenarios need to be thought of.

**Individual Contributions:**

Name	Contribution	Hrs this week	Total hrs
Uma Abu	Worked on coming up with designs on how the front end will look after working on our end to end scenario.	2	8
Lucas Jedlicka	Errantly worked on database design, it was pointed out by the client that it is too early for this. Specced out a machine to ETG and submitted a request, which is currently being fulfilled. Generalized concepts for the simple use case scenario.	3	10

<b>Sohum Sawant</b>	<b>Began work on finding an optimal solution for access tokens assignment.</b>	<b>4</b>	<b>7</b>
<b>Merin Mundt</b>	<b>Began working on the design document, and talking about the front end design with Uma.</b>	<b>3</b>	<b>6</b>
<b>Kamini Saldanha</b>	<b>Initially, started to pan out more requirements and design the architecture for the database. However, after speaking with the client, we needed to come up with more end-to-end scenarios.</b>	<b>4</b>	<b>10</b>
<b>Andrew Tran</b>	<b>Worked on completing the design and requirements of the API for the simple end-to-end scenario, as well as the design and architecture.</b>	<b>3</b>	<b>9</b>

**Plans for the upcoming week:**

Work on the Lightning Talk and design document. Provide defenses for each of the requirements and unsupported components in preparation for the end of semester panel.