SMART HOME

SSW-690

PROJECT OVERVIEW

- Our team believes that there is an untapped market for smart home technology which utilizes machine learning.

- Therefore, over the course of this semester, our team will be designing and building a proof of concept for a smart home application that will offer users fundamental security and lifestyle features that will make their lives easier.

- Our initial target customer base are homeowners, but eventually could expand to businesses as well, since one of our basic features is understanding who has entered the building or room and identifying how the system should respond.

SOCIETAL BENEFITS

- As described previously, smart home technology utilizing machine learning is a growing, but still untapped industry. Security systems, such as Ring Doorbell & Security Cams, are becoming more commonplace, but our team would like to expand that technology to make our customers' lives easier.

- Over the next few months, we will be designing the architecture and building a system that will include a few basic features. However, by creating this application, we will be laying the groundwork for an application will could include many more features as well.

BASIC FEATURES

- Some of the basic features include:

  - Cameras that take pictures of people who enter the room and the system deciding whether should notify the homeowner if it's someone the system does not recognize ("unregistered person"), or turning on the lights for that user if it does ("registered user").

  - An option for the user to notify authorities if an unregistered person enters the home.

  - In addition to turning on/off lights, our system will be able to instruct the coffee machine (or other appliances of their choice) if a registered user enters the room at a certain time or the machine is set a work time.

  - Using TensorFlow to teach the system to recognize registered users' patterns and make adjustments to help simplify the user's life.

  - A web interface so the user can log in to set user preferences or override user preferences set by TensorFlow in the database

BASIC FEATURES (CONT.)

- Some of the basic features include:

  - The system recognizing a fire and choosing to alert authorities if the user can be reached to make a decision

  - Holiday detector

  - Music player

  - Temperature controller

TECHNOLOGY & ADMINISTRATIVE

- Languages:

  - Python, JavaScript, HTML, CSS

- Hardware:

  - Multiple Raspberry Pi's and cameras

- Medium of Communication:

  - Slack for chat and Google Hangouts for video

- Collaboration:

  - Github and Trello

ARCHITECTURE