Sprint #1

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**Items to present**

* This Sprint accomplishments
  + User stories to be completed in next sprint
  + UI/UX to be implemented in next Sprint
  + QA test cases report of pass/failed test cases executed on this sprint work
  + Identify actors and roles of the system
  + Piece out requirements of the project
  + Determine Infrastructure and technologies to be used in the project

**Project Requirements**

Customer behavior monitoring is rapidly catching eye of large chain retailers. How many customers are there in the store at any given time and where they are spending their time is of interest for intelligent scheduling of employees and product displays. As part of this project, you will implement a retail IoT solution which accomplishes above mentioned goals using ceiling mounted cameras. You will assume that cameras are mounted in each aisle. Your system will provide store owners following functionality:

* Ability to create store and its layout (aisle and length of aisle)
* Specify area of interest in a video stream coming from aisle video
* Ability to register IoT camera with specific aisle
* View various statistics generated camera measurements
* Customer counts in entire store by time, day, week, month
* Customer count in various aisle by time, day, week, month
* Time spent by customers at different location in aisle

You will work with my research assistant to build intelligent model that can perform image/video analysis to detect people and track them through the store. Such information will be sent to server in minimalistic data and further analysis will be performed by servers to provide above stated business intelligence to the store manager. To support multi-store chain adaptation, you will implement required grouping schema such that a store can belong to a chain.

**Project Plan (Sprint-by-Sprint)**

Sprint #1

* Create functional requirements
* Set up GitHub repo, add TA
* Acquire hardware
* Specify technologies required
* Specify access required per user

Sprint #2

* Access control
  + Registration
  + Login/Logout
  + Role assignment/access control rules
  + Password modification/recovery
  + Email verification
  + User management
* Server + Website setup
* Hardware setup + recognition software/algorithm development/research

Sprint #3

* Web interface with hardware setup
* User access stories
* Store Layout user submission software?
  + possibly drag and drop user interface
  + simple shapes for aisles, registers, cameras, doors

Sprint #4

* Customer/individual recognition software finished

Sprint #5

* Continuing development, additional features (statistics, etc.)

Sprint #6

* Documentation
* Feature polishing/UI setup

Sprint #7

* Project demonstration

Sprint #8

* Judged demonstration

**Tools and Technologies**

* Python
* Django framework
* Vision API
* OpenCV?
* Google Cloud
* Raspberry Pi
* Raspberry Pi camera module(IoT Camera)

**Actors**

1. Store Owner
2. Customer
3. Camera
4. Raspberry Pi module
5. Website

**User Access Permissions**

* Store Owner
  + Ability to create and edit floor plans
  + Ability to add cameras or change camera placement
  + Can view statistics based on the information captured by the cameras
* Administrator
  + Creates accounts for store owners
  + Can view statistics based on the information captured by the cameras
  + In charge of overall website maintenance
* Customer
  + Can view statistics based on the information captured by the cameras

**Functional Requirements**

1. Website shall allow Store\Business owner to create profile of their business.
2. Website shall allow Store Owner to add different stores to their profile.
3. Website shall allow Store Owner to create layout of store.
4. Website shall allow labelling of aisles.
5. Website shall allow associating aisle to camera.
6. Website shall allow addition of camera module to interested area of surveillance on layout plan.
7. Website shall allow Owner to specify area of interest within camera capture
8. Website shall show area and distance of camera capture.
9. Camera modules shall be set up at designated areas
10. Camera module will capture video to be manipulated by Raspberry Pi module.
11. Raspberry Pi Module shall identify each individual customer entering/leaving store.
12. IoT camera module shall track movement of each identified individual customer within store and camera capture area.
13. Website will present different statistics based on information collected by IoT camera.

**User Stories**

* As a store owner, I can create and edit store floor plans.
* As a store owner, I can add and change camera placements around the store.
* As a store owner, I can use the store cameras to count the number of customers my store sees per day.
* As a store owner, I can use the store cameras to monitor customer behavior and to better understand where customers spend their time the most.
* As a store owner, I use use the data from the image/video analysis to determine which items are the most popular.

**Submission**

**effort log book , two sheets… mapping requirements..**