

CNG 495

Fall – 2022

Term Project Proposal

by

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Project Title: PopTracker

Project Topic:

Realtime Indoor Population Tracker using IoT and Mobile App

Project Description:

In most indoor areas, mainly gyms and supermarkets, over-crowdedness causes significant inconvenience. This inherently got more serious since the COVID-19 pandemic, when people became more reluctant to be in overcrowded areas. Our project aims to ease this problem by informing people about the population of an indoor area in real time. Users of the application would also be able to see specific statistics, such as the crowdedness of an area at specific times of the day. This would give people an option to go at a less crowded time. We are planning to integrate the system for multiple businesses. Therefore, it would be helpful to include extra details for the businesses, such as name, telephone number, website, and location. PopTracker is an application that uses IoT devices (Arduino UNO) to capture the entrance and departure of people to and from an indoor area. The IoT device would sense an entrance or departure using two motion sensors and send the data to the Cloud. The mobile app would display the data collected from the motion sensor via Cloud. The Cloud will regularly compute the existing data to create statistics.

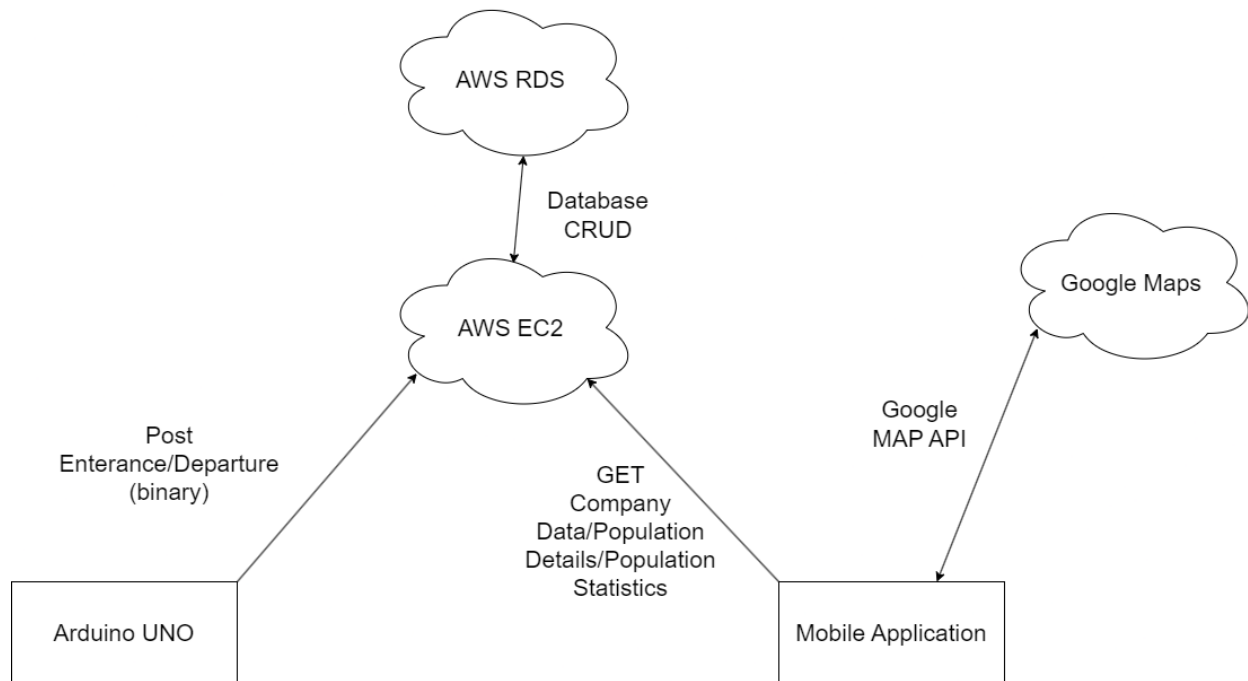
Cloud Delivery Models:

AWS Amazon EC2 – Infrastructure as a Service

AWS Amazon RDS – Platform as a Service

Google Maps – Software as a Service

Project Diagram:



Expected Contributions:

Adil Bozkurt Kebapcioglu:

- Application backend (PHP Laravel)
 - API
 - Backend computation
- AWS RDS configuration and setup
- Arduino UNO setup and configuration

Ibrahim Ozkan:

- Mobile Application frontend (Flutter)
- AWS EC2 setup and configuration (Apache or Nginx)
- Arduino UNO setup and configuration
- Google Maps API setup and configuration

References:

Flutter: <https://flutter.dev/>

AWS RDS: <https://aws.amazon.com/rds/>

AWS EC2: <https://aws.amazon.com/ec2/>

Google Maps Flutter Package: https://pub.dev/packages/google_maps_flutter

Google Maps Developer: <https://developers.google.com/maps/>

Arduino HTTP Request Handling: <https://create.arduino.cc/projecthub/instanceofMA/fetch-the-easiest-way-to-make-http-requests-on-your-arduino-65bb24>