# COFFE SHOP WAIT TIME MONITORING USING SMARTPHONE

## Team “Wait n Watch”

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## Project Idea

### The aim of this project is to develop a system which can detect and report current/future line length using smartphone at places like coffee shop, store, etc. The long and unpredictable queues at places like coffee shops cause a large amount of inconvenience in our day to day lives. Many scientific studies indicate that customers have shown a lot of dissatisfaction over such waiting times. Hence, this system tries to help the customers make more informed choices.

## Approach

## Key Challenges

### Learning Android

### Being inexperienced with android development, One of the key challenges for the team is to learn android from scratch. Way to tackle the problem is to learn android from various online resources such as Lynda tutorials, Vogella tutorials, etc. and in short span of time.

### Hosting web server

### For implementing server side for fetching the results, the entire web server need to be deployed on the specific domain. The key challenge is to implement and host the web service with database on purchased domain. Way to tackle the problem is to use PHP as server-side technology for implementation and looking into some free domain to host the service.

### Building model

### For Implementation of Model, Key challenge is to estimate the line wait time for any arriving query using collected data. Our approach to solve the problem is a nearest neighbor estimation (NNE) based on constrained nearest-neighbor search in a multi-dimensional space. Also we would like to propose second approach where we improve NNE by building time-series model on collected data using the previous history of wait-times. Basically, both the approaches will be evaluated using the Mean absolute error metric and the improvements will be implemented accordingly.

### Collect data

### Collecting data is one of the biggest challenge. Way to tackle is to distribute the application to the users who frequently visits one particular coffee shops or team would manually go and collect data on frequent basis to gather more and more data at different times.

## TimeLine

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| --- | --- | --- |
| Date | Manasvi | Rohit |
| Present to February end | Learning Android and Location sense module | Learning android, SQLlite and uploader module |
| March to Mid-March | Web server and hosting | Web server and hosting |
| Mid-March to March end | Data filtering and Implementing model | Data collection and implementing model. |
| April to April end | Implementing model and testing | Testing and optimizing |