GroupPowerSave
Midterm Presentation

SNUCSE Advanced Mobile Computing S19
Team 7

Contents

Introduction

Project Overview

- Transportation System

- Provide GPS with group to reduce power consumption

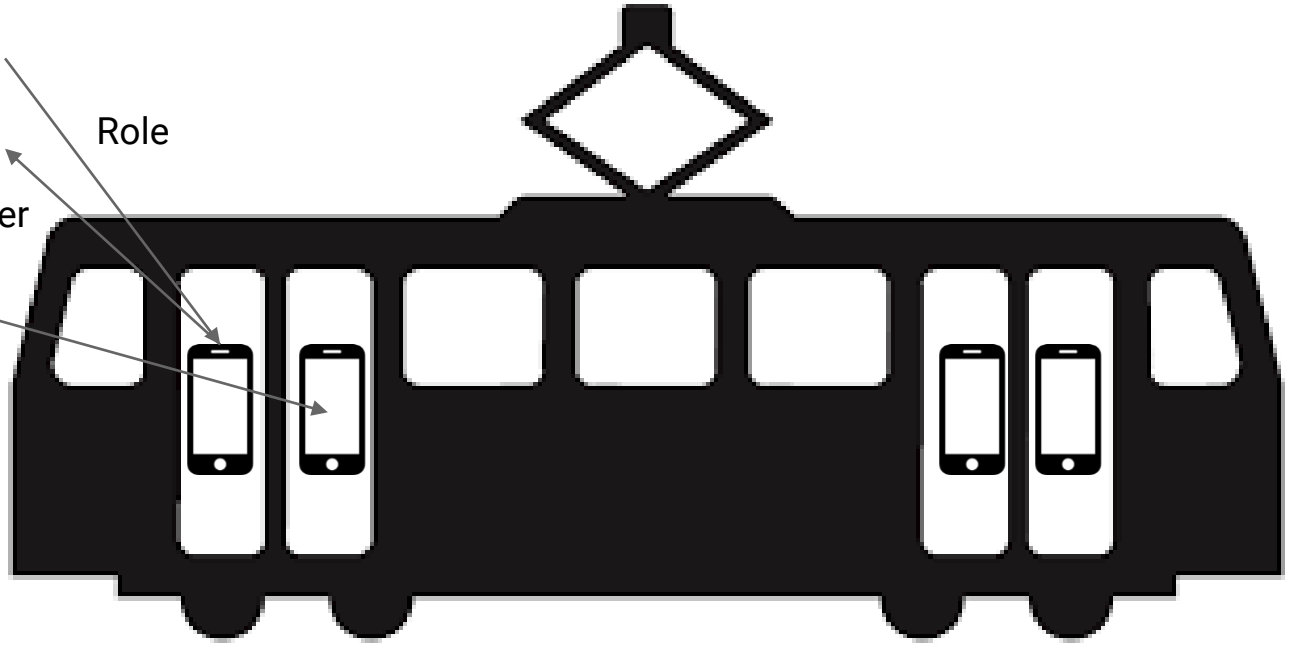
System Architecture Overview

If my role is leader, send GPS data.
Else, get GPS data from server.

Role

register

Send GPS data with offset
to others.



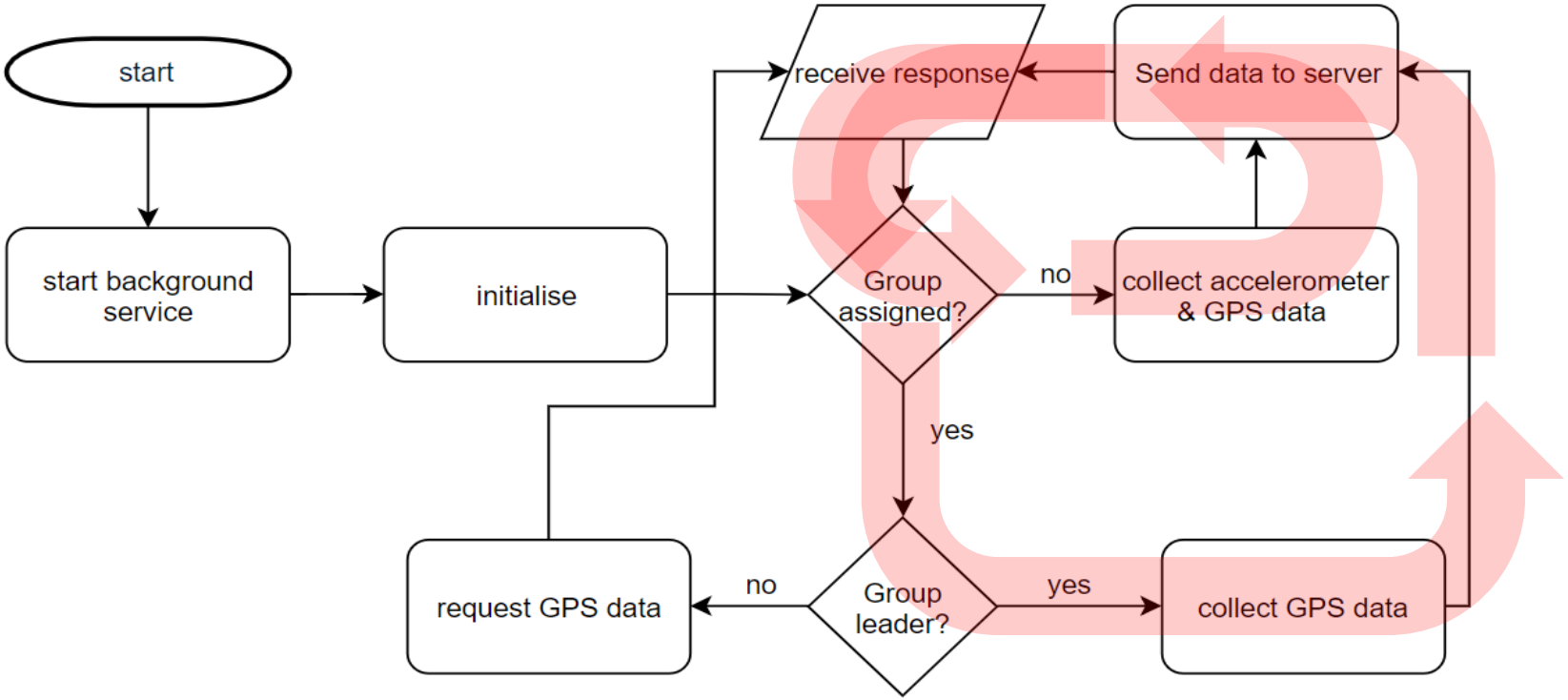
System Architecture Overview

- Role management
- Grouping management
- Calculate offset & send GPS data to group
- Evaluate sensor data

- Send request
- Send sensor data (GPS, accelerometer)
- Get GPS data

Client Application

Client cycle overview



Challenges in Client implementation

Getting used to android environment
-testing on phone
-many unknown components
-often legacy solutions online
-different hardware out of Scale?

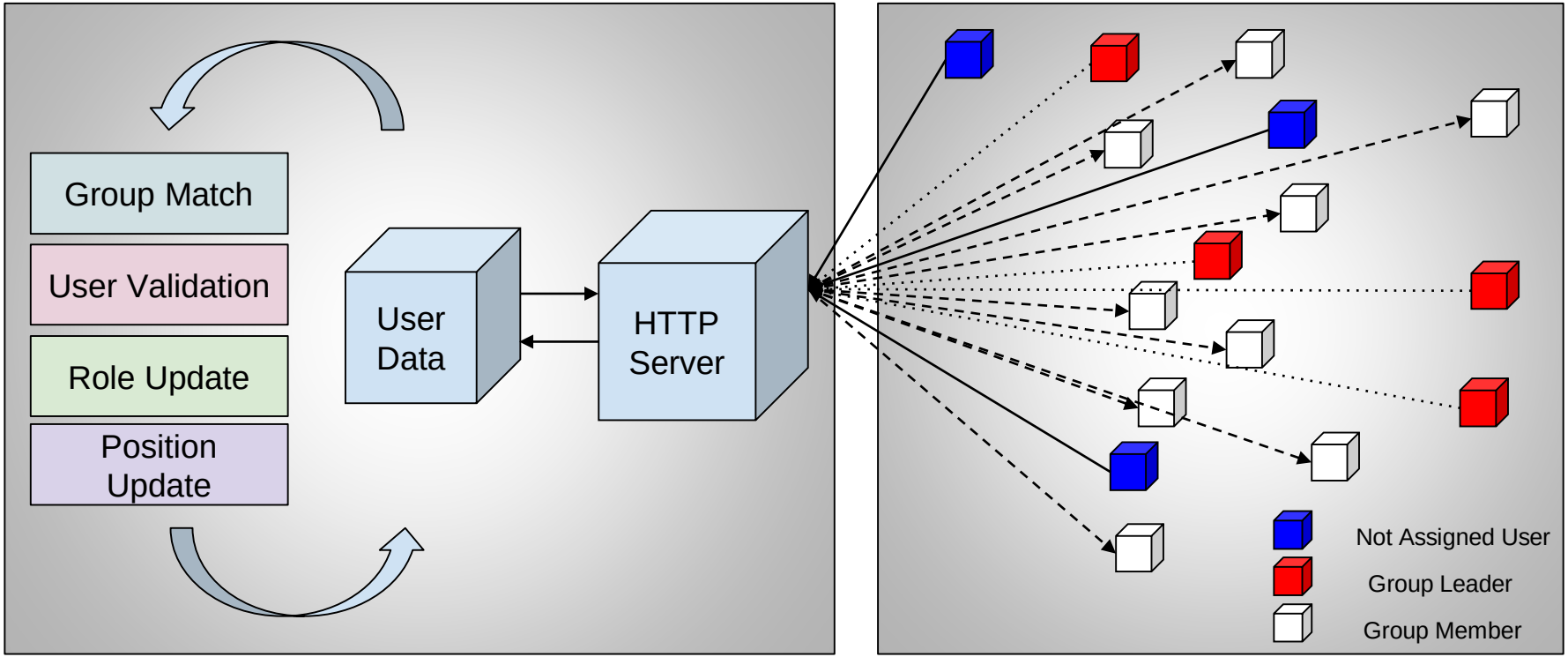
Good communication for server-client interaction very important

Server

Environment Setting

- AWS EC2
  - Easy deploy (AMI)
  - Free tier
- Python
  - Async HTTP server
  - Machine learning libraries
  - Data visualization

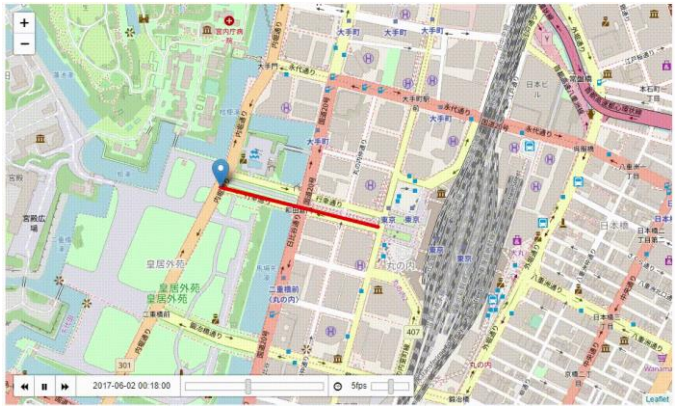
Architecture



Data Gathering & Visualization

- Convert User data into a table
  - Data for **group matching algorithm**
  - Visualization
- Folium Library
  - Turn Python manipulated data into an **interactive html**
  - Reachable in **server**
    - Link (Heatmap Demo)

Row	sid	season	number	basin	subbasin	name	iso_time	nature	latitude	longitude
1	1971275N10176	1971	131	WP	MM	FAYE(GLORIA):GLORIA	1971-10-08 06:00:00.000 UTC	TS	14.4333	132.0
2	1971275N10176	1971	131	WP	MM	FAYE(GLORIA):GLORIA	1971-10-08 12:00:00.000 UTC	TS	14.3273	131.136
3	1971275N10176	1971	131	WP	MM	FAYE(GLORIA):GLORIA	1971-10-08 18:00:00.000 UTC	TS	14.1889	130.356
4	1971275N10176	1971	131	WP	MM	FAYE(GLORIA):GLORIA	1971-10-08 00:00:00.000 UTC	TS	14.95	132.875



HTML based interactive map

Future Works

Done-List

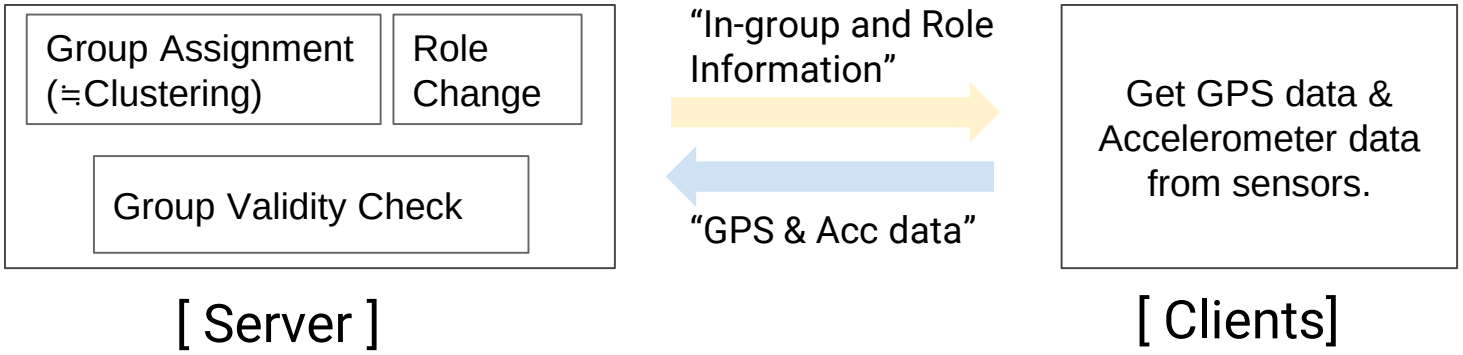
What we have done is…

- GPS data communication between server and client.
  - Group assignment using GPS data.
- User registration

To-Do List

What we are to be done is …

- Group cycling
  - select leader and take turns.
- Group clustering among many users
  - calculate group offset to deliver the group location.
- Group validity check using Accelerometer data.




THANKS