iTraffic
Smart Traffic Identification System

Group ID 19 - 127

Student Name	Registration Number
Kavindu Geesara Paranavithana	IT16008106
K.C Gunawardana	IT16145276
Nipun Sachinthana T.A	IT16119390
S. D Wijewickrama	IT16048638

Research Problem

- Traffic congestions at the busy city centers has been a major problem in most people day -to-day life.
- As the numbers of vehicles are increasing day by day this problem becomes more severe.
- One of the main reasons for this problem is the drivers are not aware of the traffic ahead.

Research Problem

- In some cases traffic congestions have been aroused due to the outdated traffic light systems.
- Another problem arises when an emergency vehicle(Ambulance) comes to a traffic jam there is no mechanism to get the priority to that vehicle.
- Using Mobile Phones is big issue while driving.

Research Gap

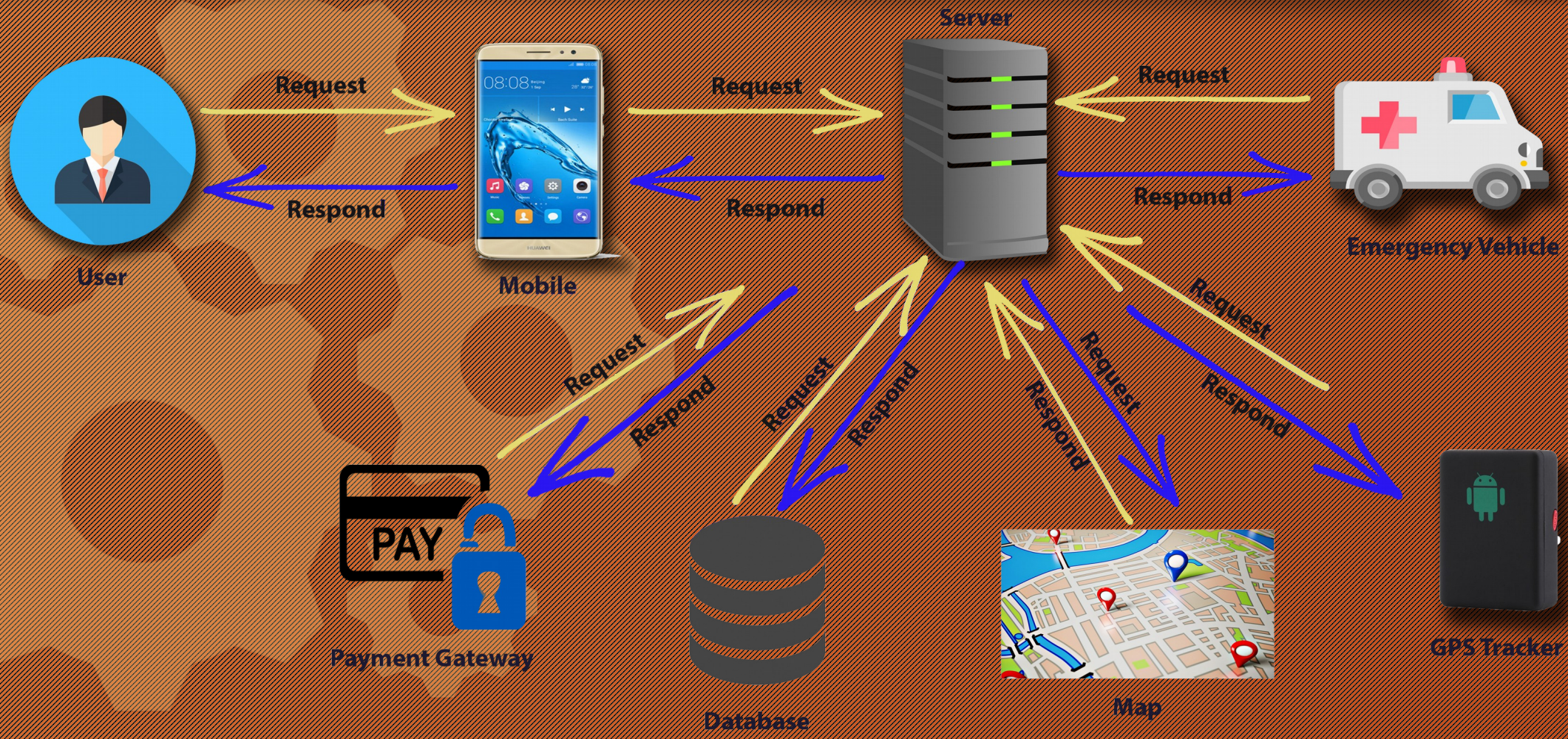
Features	Here We Go	WAZE	SYGIC	Proposed App
Real time traffic details by GPS technology	✗	✗	✗	✓
Show all the alternative roads to users.	✓	✓	✓	✓
Driver Assistant	✗	✗	✗	✓
Ahead traffic situation by GPS technology	✗	✗	✗	✓
Share friends location	✗	✓	✗	✓

Features	Here We Go	WAZE	SYGIC	Proposed App
Suggest Nearest Taxi service for the passengers who use the public transportation.	✗	✗	✗	✓
Send alerts to the drivers who are in ahead when an emergency vehicle coming in their road.	✗	✗	✗	✓
Ahead weather forecast	✗	✗	✗	✓
Promotion feature to shops.	✗	✗	✗	✓
Co-travel facility for users.	✗	✗	✗	✓

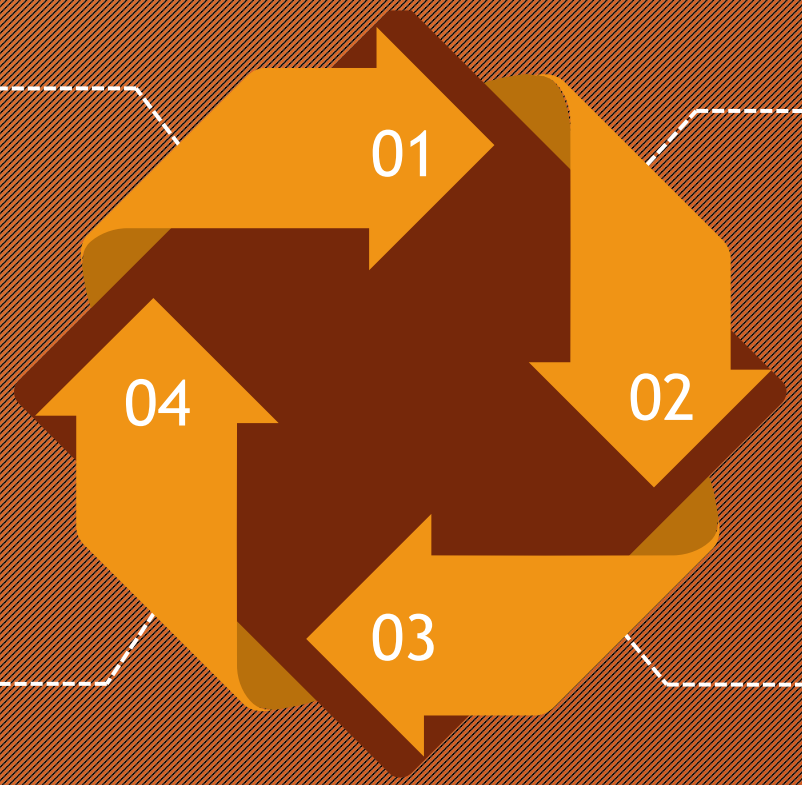
Objectives

- Introduce a mobile application to minimize traffic congestion.
- Real-time and accurate traffic visualization.
- Development of mobile application facilitating crowdsourcing.
- Alternate path suggestions based on weather and traffic data.
- Implementation of lightweight security algorithm for data protection.

System Overview

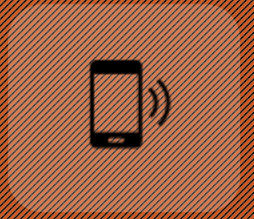


GPS Tracking



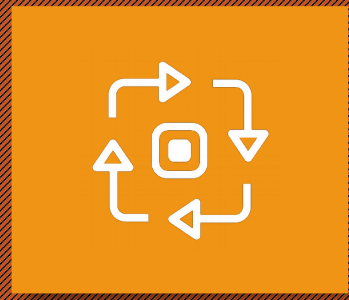
Intelligent Driver Assistant

Data Security

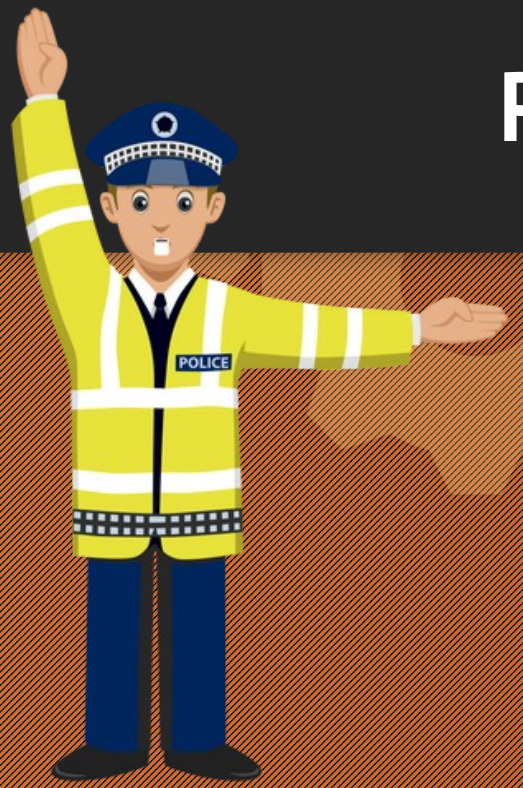


Mobile Applications

What was your process?



Personal Work Distribution



Server Side Data Manipulation & Tracking Process

- GPS tracker component for all vehicles GPS detection. Use this GPS tracker for detecting emergency vehicle and give an alert to the mobile application.
- Managing server side for passing data using web server API. Server side is working for entire research.
- Payment functions for app feature release. To take payment gateway for manipulating payment function
- Map Matching Algorithm.

Vehicle Detection & Informing Process

- Give ahead traffic condition to drivers by text & voice messages.
- Updated the map in every 0.5 seconds with vehicle vise.
- Give ahead whether condition to drivers by text & voice messages .
- Show alternative roads that can be used by drivers to get rid of the traffic situation if driver want.
- Three-wheelers are shown and contact with people who use public transport facilities that are confronted with traffic congestion.
- When an ambulance arrives on the road, the application will send a voice message to the ahead vehicles.

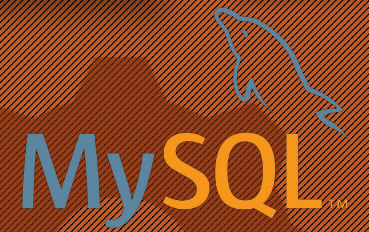
Intelligent Driver Assistant

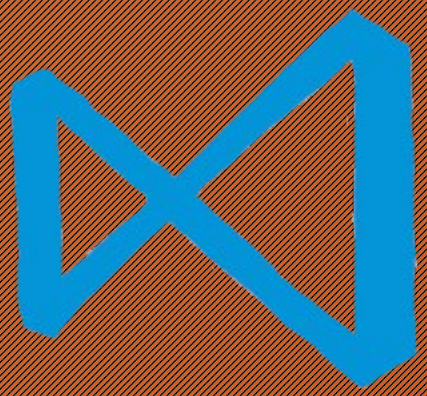
- Create Intelligent Driver Assistant.
- Create Mobile application features to work for voice commands.
- Evaluate best NLP Open Source Library.

Evaluate Best Data Transmission & Storing Methods.

- Compare data transmission algorithms for finding the most suitable method for the proposed application. These things will be considered when selecting the method.
  - ❖Security and Performance
- Implement the system using the selected method.
- Finding the best ways to protecting the confidential details of the users and compare these methods for evaluating most suitable way to protect server details from unauthorized accesses
- Implement the selected security mechanism for server.
- Implementing other access control mechanisms for the system.

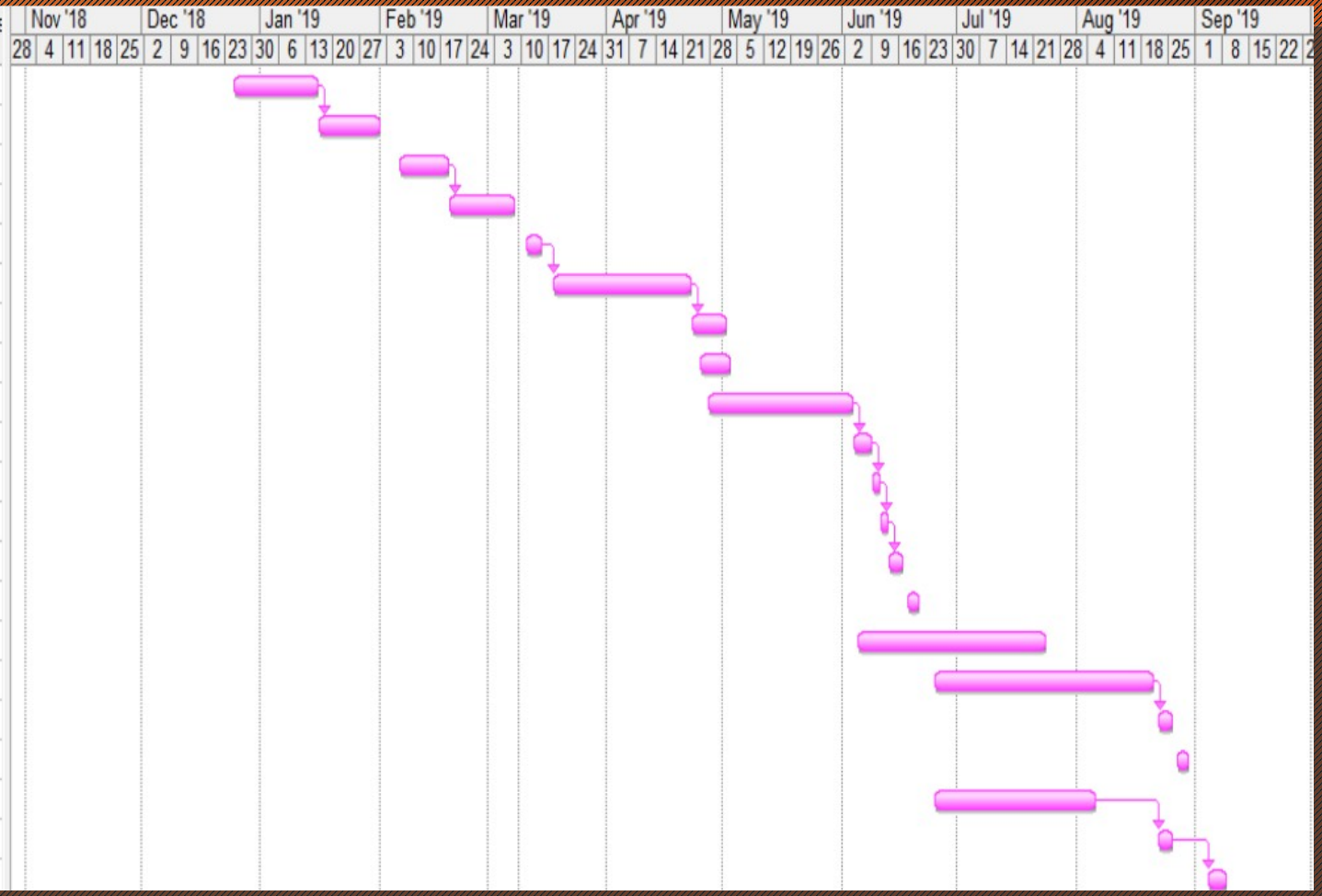
Technologies Using





Gantt Chart

Task Name	Start Date	End Date	Predeces
Research Topic Selection	Tue 12/25/18	Tue 1/15/19	
Project Charter	Wed 1/16/19	Thu 1/31/19	1
Study on Research Area	Wed 2/6/19	Mon 2/18/19	
Project Proposal Report	Tue 2/19/19	Thu 3/7/19	3
Proposal Presentation	Mon 3/11/19	Thu 3/14/19	
SRS Document/ Design Document	Mon 3/18/19	Mon 4/22/19	5
System Design and planning	Tue 4/23/19	Wed 5/1/19	6
Design Interface sketches	Thu 4/25/19	Thu 5/2/19	
Implementation of Zilla functions	Sat 4/27/19	Mon 6/3/19	
Unit Testing Level 01	Tue 6/4/19	Sat 6/8/19	9
Module Testing Level 01	Sun 6/9/19	Mon 6/10/19	10
System Integration Level 01	Tue 6/11/19	Wed 6/12/19	11
System Testing Level 01	Thu 6/13/19	Sun 6/16/19	12
Progress presentation 50%	Tue 6/18/19	Thu 6/20/19	
Prepare Research Paper	Wed 6/5/19	Tue 7/23/19	
Implementation of Zilla functions	Tue 6/25/19	Tue 8/20/19	
Testing Level 02	Thu 8/22/19	Sun 8/25/19	16
Progress presentation 90%	Tue 8/27/19	Thu 8/29/19	
Final Report	Tue 6/25/19	Mon 8/5/19	
Final Report Feedback submission	Thu 8/22/19	Sun 8/25/19	19
Website Assessment & Research Book	Wed 9/4/19	Sun 9/8/19	20



THANK YOU!