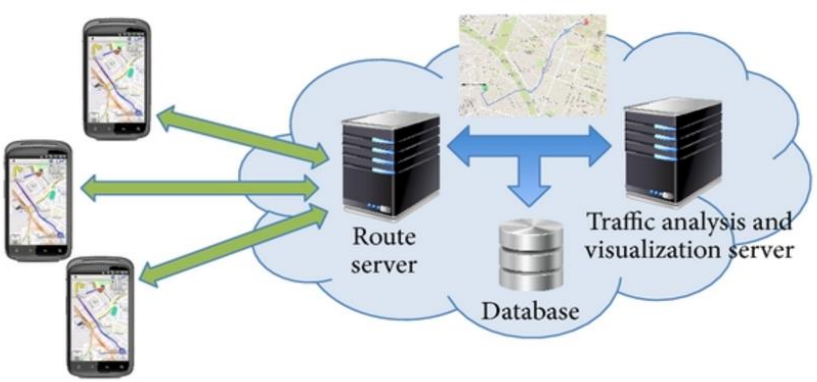
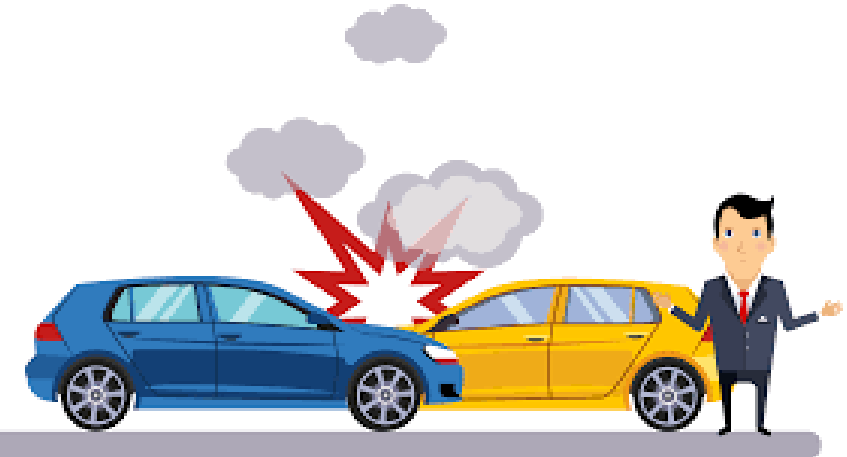


Location based crisis analysis and day planning with artificial intelligence and IOT for smart city



SMART CITY

Project ID : 19-045

Supervisor: Ms Hansika mahaadikara

We are....

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Smart City

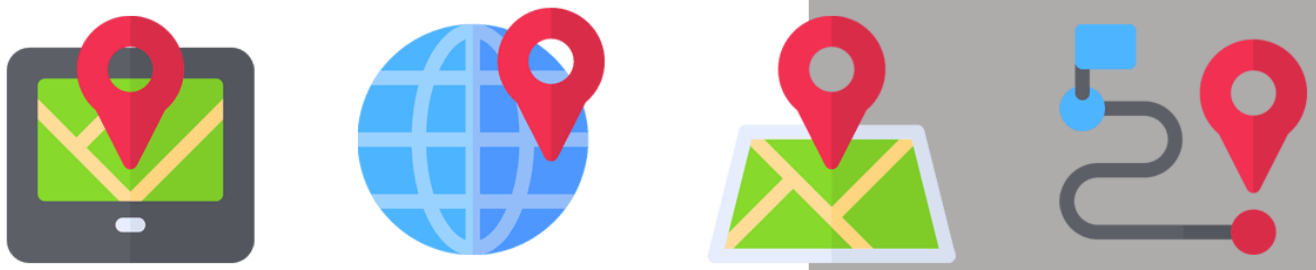
Introduction

A large number of people moving towards urban cities, by 2030 more than 60% of the population will live in urban environment

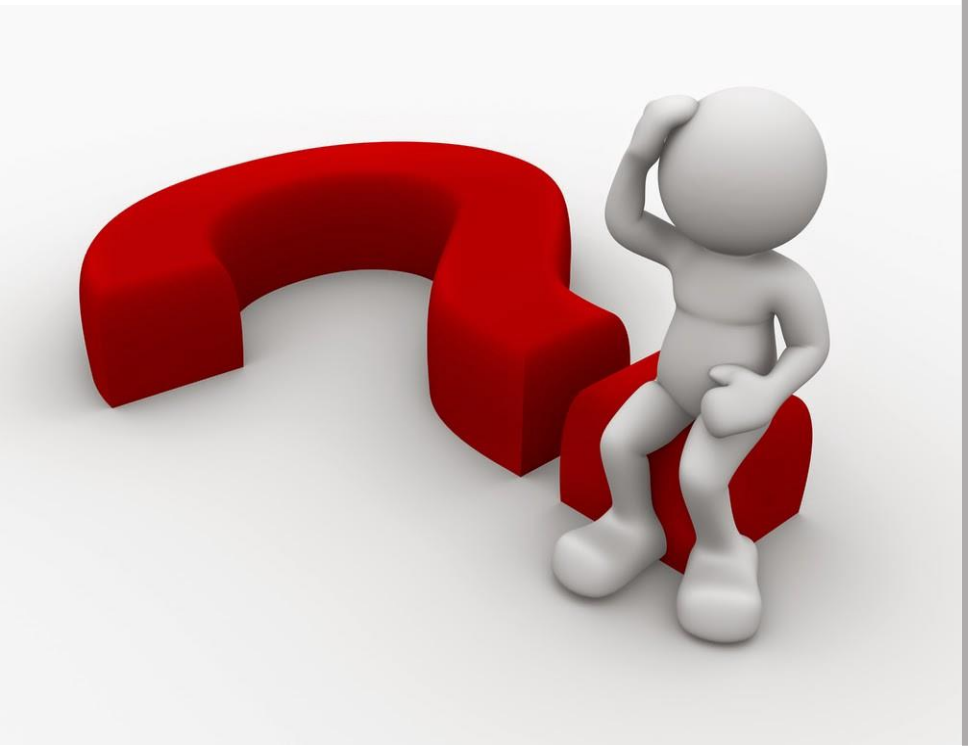
Introducing application is a great step towards a better and faster smarter city. Because with this application people will be able to travel here and there without any trouble because they will be able to plan ahead. It will cause people to be more efficient and time saving in the busy world.

Background Study

- Study about google API
  - Traffic API
  - Geography API
  - Place Identify API
- Research above Algorithm
  - traffic analysis algorithm
  - weather analysis algorithm



Problem ??



No system or successful mechanism to,

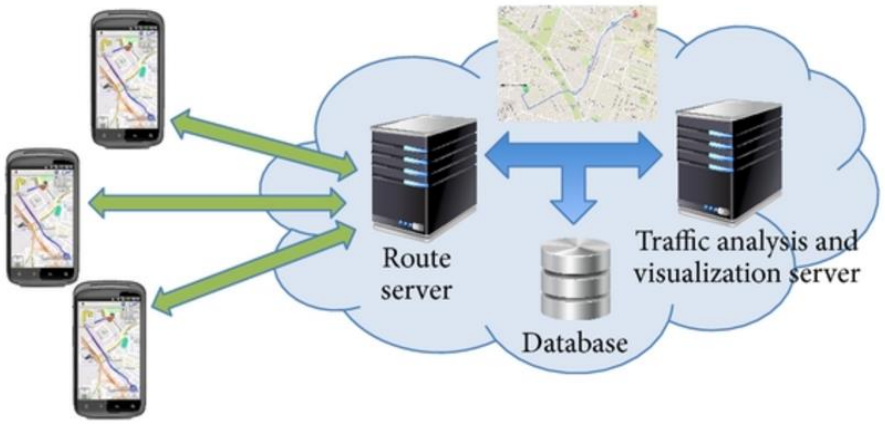
- There is no way (or at least no reasonably easy and convenient way) **to get** the raw **traffic data from Google Maps** JavaScript **API** v3. ... It's not clear **from** the documentation how much **traffic data** that exposes as it's only **data** about "incidents".

- Weather analysis might not be 100% correct because it’s just a prediction. And it’s hard to give out the weather analysis of every area.

Methodology

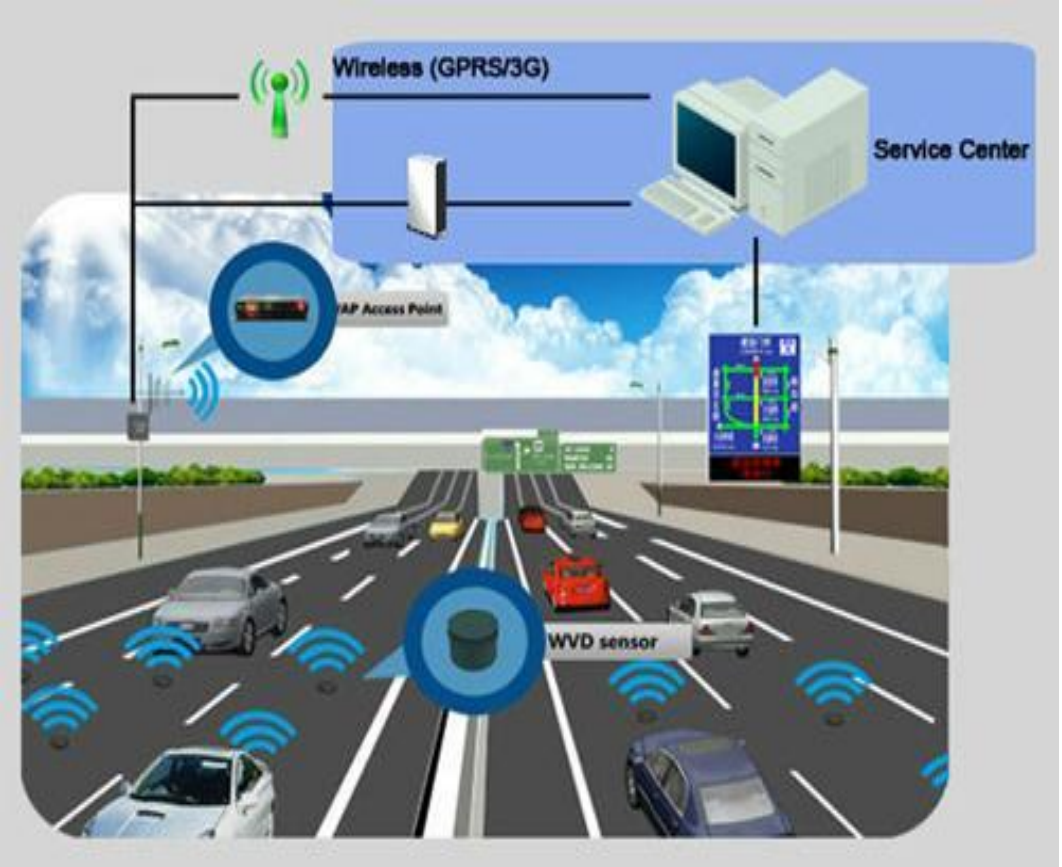
Smart City

Methodology



This section includes detailed descriptions about the techniques and mechanism employed to make our “Smart City App” a reality. The descriptions include how software implementation of our project is carried out, what are the materials and data needed, and how they will be collected. It also includes time frames and schedules that are required in achieving its objectives. In addition to them, the research areas that we have identified to carry out this project are explained rationally.

Research Gap



As a result of the research conduct in smart city system. We identify some research gaps.

Although accidents, crimes and disasters are a common occurrence in roads and urban areas, a quick report submission, identification and notification capabilities are lacking in most of the existing road based solutions as elaborated in the literature. The proposed Smart City Application is a solution which enhance the user experience.

Even though there are existing proposed applications available, they do not address most of the problems that the proposed system is going to address. Proposed mobile application consists of many features as a solution for the main issues people faced in day to day life due to traffic problems.

Research Gap

other projects drawbacks are,

Features	Google Map	Culture and new digital technologies transforming world cities	Proposed App	Pick Me
Analyze the time taken for reach the destination	✓	✓	✓	✓
When we submit the time to reach the destination show the start time	✗	✗	✓	✗
When we start travelling show us the weather report on the passing areas	✗	✗	✓	✗
Identifying the closest department relevant to the report	✗	✗	✓	✗
Shows the closes route according to the weather and traffic data	✗	✗	✓	✗

Culture and new digital technologies transforming world cities:
https://www.academia.edu/38623742/Culture_and_New_Digital_Technologies_Transforming_World_Cities

Objective

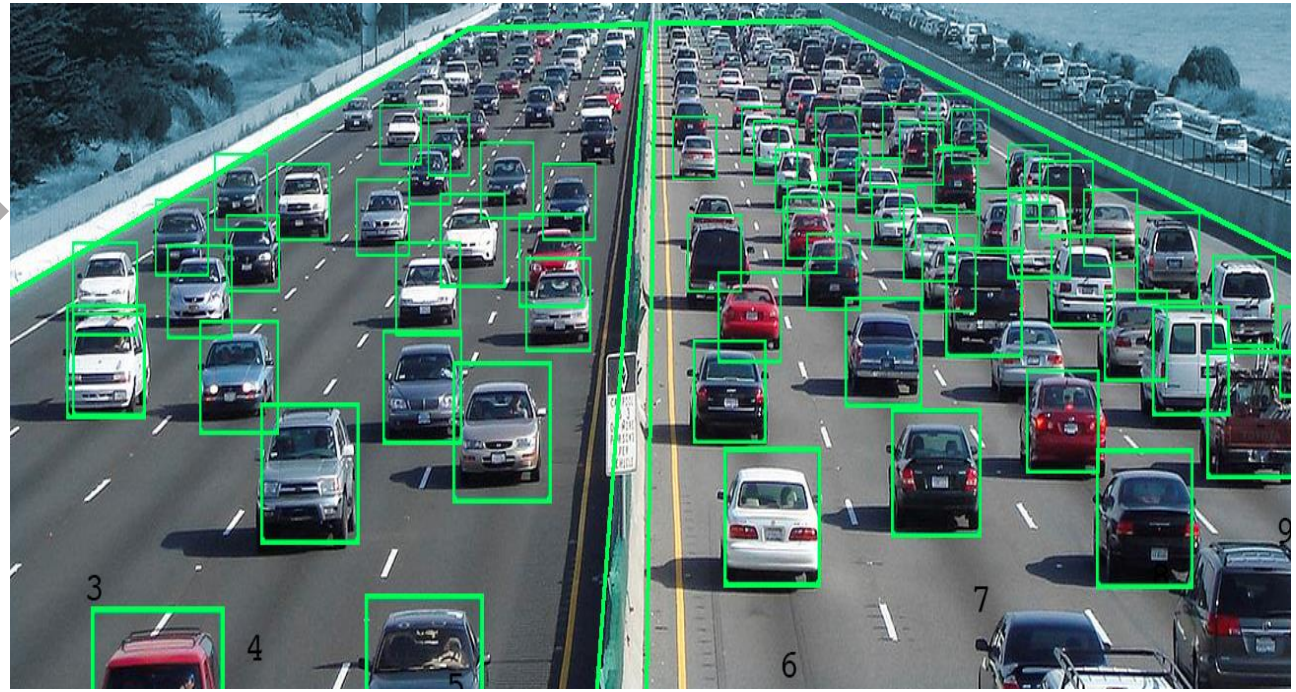
- Providing people with weather data
- Providing people with traffic data
- Arrange the quickest way to the destination

Advantages

- Help people to report disasters, crimes and crisis
- Help people to how to act accordingly in a crisis

Traffic data analysis and prediction

1
Function



➢ traffic

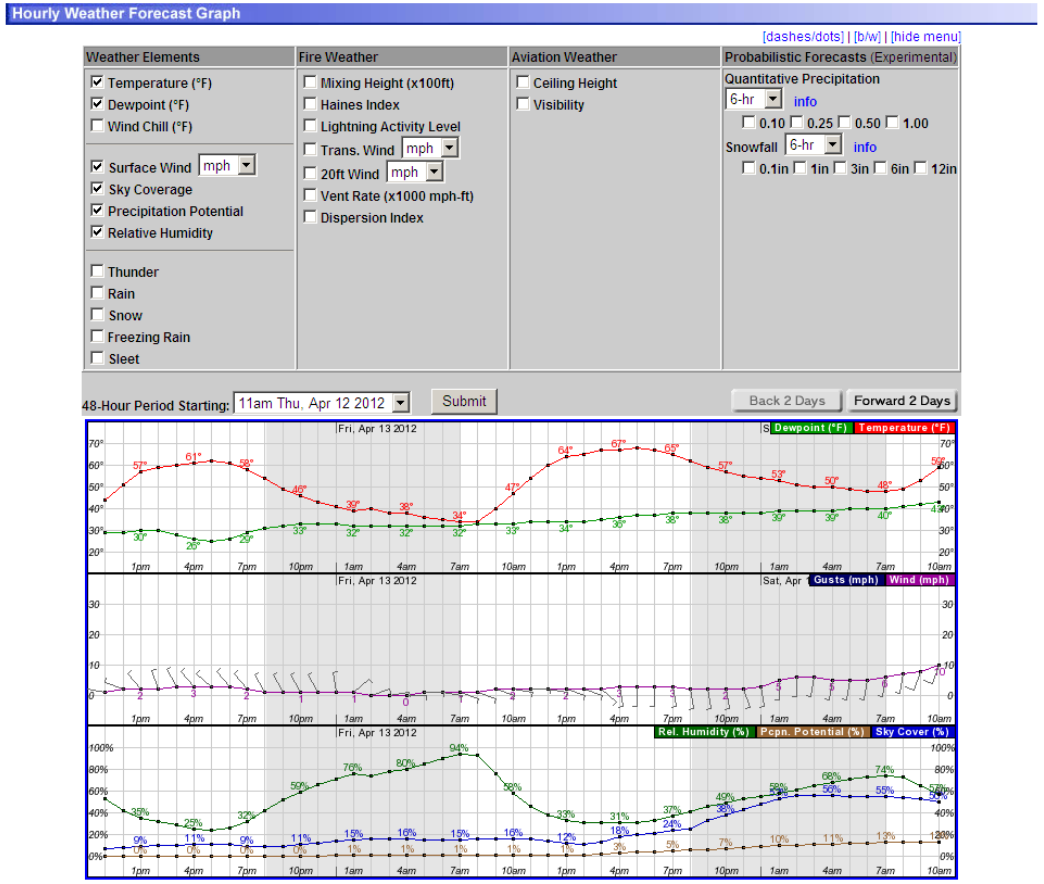
- create a special automated function for the selected objects in google map to collect data automatically and store them in the database,

TECHNOLOGY :-

- Selenium tool
- TestNG framework

Weather report analysis and prediction

2 Function



➢ Weather

- Analyse weather data from weather api according to daily travelling root plans.
- Analyse safety high places by geography api;like tsunami situation.
- Implement a algorithm for calculate time delays happen in rain days.

TECHNOLOGY :-

Predict time=Historical time + (time delay)*p

(calculated normal day time)

$$td = \frac{\sum_{i=1}^{n}(t_1 - t_2)}{n}$$

p=rain percentage of power

t1=rain time

t2=normal time

3
Function

Detecting Accidents and sending notifications to emergency responders

➢ accident

- Whenever an accident occurs it will be identified by the in-built sensors(accelerometer) by using the force that the vehicle faced and notify it to the emergency responders and contacts using firebase cloud messaging with location. [1]

TECHNOLOGY :-

$$A_D = -g - \left(\frac{\sum F_s}{m}\right)$$

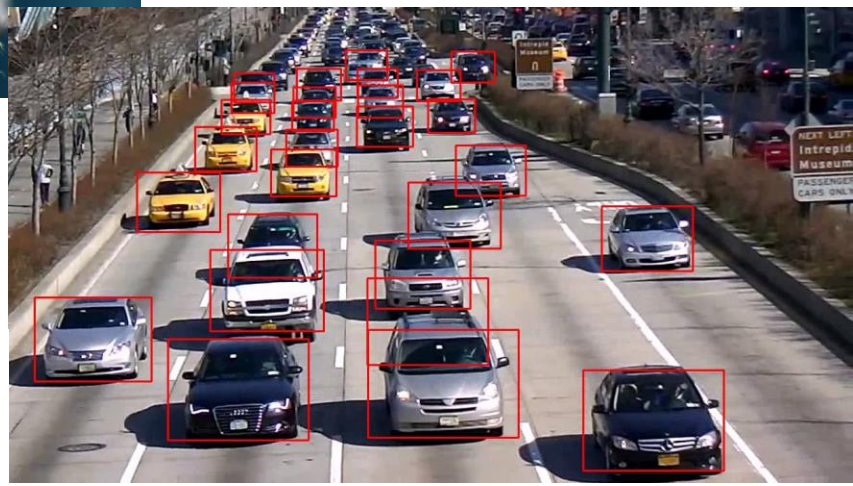
$$a = \sqrt{a_x^2 + a_y^2 + a_z^2}$$

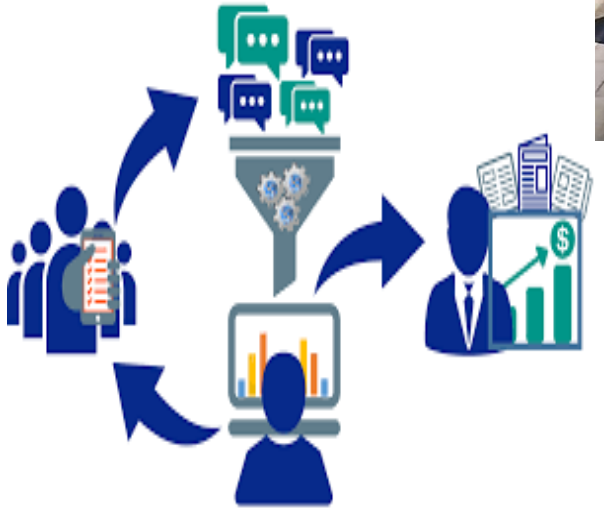
$$G = \frac{a}{g}$$

accelerometer sensor (A_D)
force (F_S)
mass (m)
gravitational acceleration (-g)
acceleration (G)
axes (ax, ay, az)

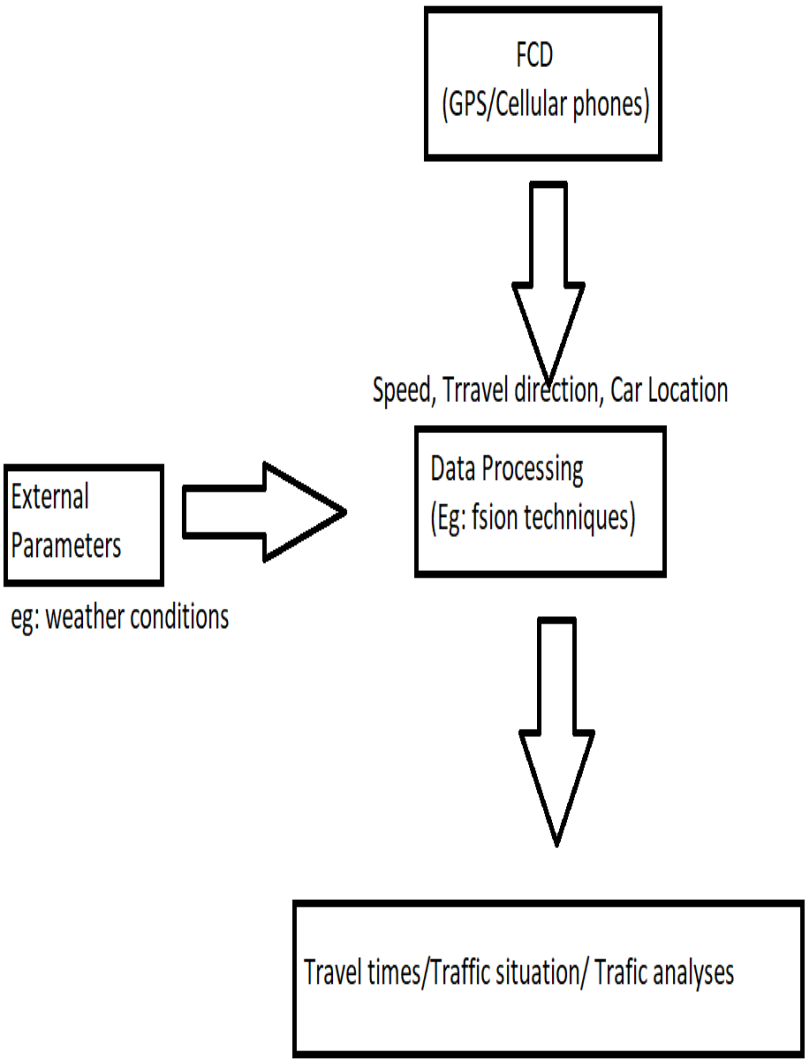
4
Function

Data(traffic, weather) collection processing and analysis





➢ Data collection processing and analysis



- Providing the user with the easiest and the closest route to reach his/her destination by creating an algorithm with the traffic analysis data and the weather report data. Also, users will be able to share the situations using a chatroom.

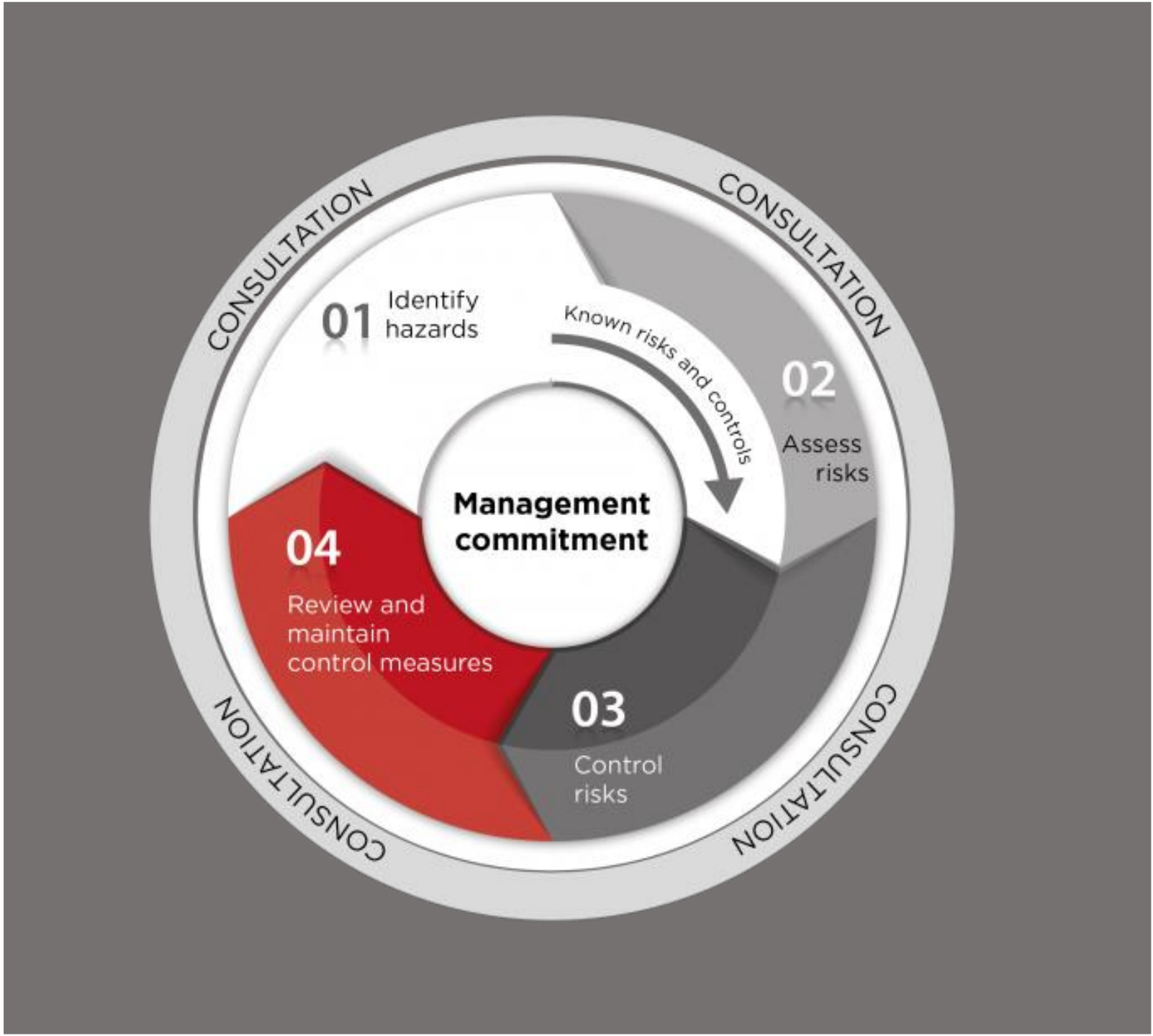
TECHNOLOGY :-

- fusion techniques
- Algorithm

Work break down

- Widget Mgmt. System 1
  - Initiation 1.1
    - Evaluation & Recommendations 1.1.1
    - Develop Project Charter 1.1.2
    - Deliverable: Submit Project Charter 1.1.3
    - Project Sponsor Reviews Project Charter 1.1.4
    - Project Charter Signed/Approved 1.1.5
  - Planning 1.2
    - Create Preliminary Scope Statement 1.2.1
    - Determine Project Team 1.2.2
    - Project Team Kickoff Meeting 1.2.3
    - Develop Project Plan 1.2.4
    - Submit Project Plan 1.2.5
    - Milestone: Project Plan Approved 1.2.6
  - Execution 1.3
    - Project Kickoff Meeting 1.3.1
    - Verify & Validate User Requirements 1.3.2
    - Design System 1.3.3
    - Procure Hardware/Software 1.3.4
    - Install Development System 1.3.5
    - Testing Phase 1.3.6
    - Install Live System 1.3.7
    - User Training 1.3.8
    - Go Live 1.3.9
  - Control 1.4
    - Project Management 1.4.1
    - Project Status Meetings 1.4.2
    - Risk Management 1.4.3
    - Update Project Management Plan 1.4.4
  - Closeout 1.5
    - Audit Procurement 1.5.1
    - Document Lessons Learned 1.5.2
    - Update Files/ Records 1.5.3
    - Gain Formal Acceptance 1.5.4
    - Archive Files/ Documents 1.5.5

Signification



Business Model

There are considerable amount of people travelling daily in urbanized areas.

As a research team, we have planned to commercialize this business product,
This proposed product can be promoted among all the daily travelers who has busy lifestyles in urban areas.
This product can be used to maximize the traveler’s efficiency by making daily plans and planning ahead.

Reference

- [1] Md. Syedul Amin, Mohammad Arif Sobhan Bhuiyan,Mamun Bin Ibne Reaz and Salwa Sheikh Nasir, GPS and Map Matching Based Vehicle Accident Detection System. December 2013
- [2] https://stackoverflow.com/questions/4600656/access-googles-traffic-data-through-a-web-service
- [3] https://developer.accuweather.com
- [4] https://docs.microsoft.com/en-us/bingmaps/rest-services/getting-traffic-incident-data

Work Breakdown

T.H.T.S de Silva

Weather report analysis and prediction

H.M.T.S Jayarathna

Sending reports to the relevant department and location based services

D.F.M.A Lakshitha

Traffic report analysis and prediction

Nethini Weerasinghe P.W.

Data(traffic, weather) collection processing and analysis


THANK
YOU