# CS7CS3 Advanced Software Engineering Group Project

# Requirements/Use Cases

# Project Name: *Please enter here*

**Group: *<Group Number>***

***<List of Group Members>***

# 1. Use Case Diagram

Please include a UML Use Case Diagram (see slides on Blackboard) for the project.

*Diagram here.*

*<From <single use case description start> to <single use case description end> contains the structure of the information that should be here for* ***each*** *use case. Copy and fill all sections for* ***EACH******USE CASE****>*

*<single use case description start>*

### Use Case Name:Display rerouting suggestions based on congestions/CO2 emissions/busy periods

1. Description

*Describe the goals and responsibilities of the Use Case*

*Goals:*

1. Use Historical data for all the bus stops in Dublin.
2. Use Live data to determine current bus locations.
3. Rerouting of the buses based on congestions/Co2
4. Change in timings and increasing the frequency based on certain events or time.

*Responsibilities:*

The application will be able to suggest new routes for buses in the areas where the CO2 emissions are high thereby reducing pollution levels in the affected area*.*

Actors

*List the actors that are involved, and their roles in the Use Case*

1. City Managers – City Managers will be able to visualise the previous Co2 levels and new Co2 levels of the area after rerouting buses to new routes.

Triggers and Inputs

*List and describe the triggers that start this use case executing, and the subsequent inputs*

Triggers:

1. User logs in to the application.
2. User selects the ‘Bus’ dashboard to view the Map inside it.

Inputs:

1. Users can select the time period in the map to know the count of buses at any Bus Stop.

2. Flow of Events

| Basic Flow | | | |
| --- | --- | --- | --- |
| User | | System | |
| 1 | User selects the ‘Bus’ dashboard view in the application. |  |  |
|  |  | 2 | The system retrieves the historic and most-recent Bus data from the local database. |
|  |  | 3 | Map of Dublin city is displayed, with the Bus routes overlaid. |
| 4 | User selects a time range. |  |  |
|  |  | 5 | Map is updated with bus stop location and showing the CO2 levels of different areas |

3. Special Requirements

*Here is where you indicate if the use case has any special requirements or expectations as to the existence of other systems*

This data requires the existence of historical and live Bus and CO2 emiissions data sources.

4. Preconditions

*Describe what must have occurred previously for this use case to execute*

Users must have logged in to the system, and have sufficient privileges ..

Live data must have been pushed to the local data buffer.

5. Postconditions

*Describe the state of the system, or what should be seen to have been achieved, when this use case has completed its processing.*

*<single use case description end>*