



King Fahd University of Petroleum and Minerals

College of Computer Sciences and Engineering (CCSE)

COE 485

Senior Design Project

Intelligent Transportation System

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1 Problem Description

It is known that Riyadh traffic is very heavy. Even though traffic lights play big role in organizing the traffic, they make the traffic heavier if they get congested with cars. Also, it is hard for emergency cars to pass the intersection since most people are not willing to pass through the red light and pay the 3000SR ticket if an emergency vehicle is behind them. That is a serious problem and it might lead to severe injuries or even death. The project idea is to design and implement an intelligent transportation system to lower the traffic jam and ease the transportation for emergency vehicles.




2 Main User's Requirements

- The system shall reduce the traffic lights' waiting time.
- The system shall enhance the drivers' experience.
- The system shall be cost efficient.
- The system shall be easy to expand.
- The system shall have different types of vehicles with different priorities.



3 Possible Approaches

- A possible approach to implement this project is by using Any Logic simulation software as it has many futures for implementing road infrastructure planning and traffic light sequencing and timing. 
- Another way to implement this project is by implementing it in Packet Tracer software as it provides a suitable infrastructure for networking and communication, but it would not be easy to integrate it with a cloud server as we need to connect packet tracer network with an outer server to be able to use the cloud.

4 Phases

- Researching simulation software and learning how to use them.
- Designing the traffic system
- Program the cloud host server
- Implementation in the simulation software

5 Tasks

- Research the literature
- Learn how to use AnyLogic simulation software and compare it with Packet tracer to decide which simulation tool is most suitable for the project.

- Research how to use a cloud server with AnyLogic either internal or external server.
- Learn how to use cloud servers.
- Design the road and the traffic light.
- Integrate the design of the road and traffic infrastructure in the simulation software.
- Figuring out how to control the traffic light signal.
- Figuring out how to set priority to different types of vehicles.
- Start configuring the traffic light with the integration of the priority system.
- Design a computer vision system that identifies emergency vehicles and measures the level of congestion in each side in the intersection
- Integrate the computer vision with the simulation tool

6 Initial plan

Week Number	Adnan	Saleh	Abdullah
Week 3	Research the literature	Research the literature	Research the literature
Week 4	Use Cases & Activity	Use Cases & Activity	Use Cases & Activity
Week 5	Compare and choose the simulation tool	Compare and choose the simulation tool	Compare and choose the simulation tool
Week 6	Project Concept, Architecture, and Deployment Diagram	Project Concept, Architecture, and Deployment Diagram	Project Concept, Architecture, and Deployment Diagram
Week 7	Design the road and traffic light in the simulation tool	Learn how to use a cloud server	Learn how to integrate the design with the simulation
Week 8	Mid-semester Progress report & Presentation	Mid-semester Progress report & Presentation	Mid-semester Progress report & Presentation
Week 9	Research computer vision	Research computer vision	Research computer vision
Week 10	Control the traffic signals	Identify cars using computer vision	Implement cars in simulation tool and control the flow

Week 11	Week 10 tasks	Week 10 tasks	Week 10 tasks
Week 12	Integrate computer vision with the simulation	Link the traffic light in the network	Set priorities for different types of cars and how to detect it
Week 13	Detailed Design	Detailed Design	Detailed Design
Week 14	Final implementation and review	Final implementation and review	Final implementation and review
Week 15	Prototype & Testing Final report Presentation	Prototype & Testing Final report Presentation	Prototype & Testing Final report Presentation