# CHAPTER 7 – CRITICAL EVALUATION

## 7.1 Introduction

The main purpose of this chapter is to outline the critical evaluation of the project. It will bring to attention the purpose of the research, challenges encountered during the development process, lessons learned, and lastly future recommendations of the system.

## 7.2 Reason for Undertaking the Project

The main reason the project was undertaken was to help reduce traffic congestion as well as the wait times at traffic lights to quicken or enhance the smooth flow of traffic.

## 7.3 Main Learning Outcome

The following are the lessons learned from the undertaking of this project:

* Value of Research

The design and development of this project highlighted the importance and value of research. It outlined that for a project to be successful, research has to be carried to know how and where various components of a system can be put together.

* Hard work, Patience and Perseverance

The design and development of this project also highlighted the importance of hard work, perseverance, and patience. For a system or project to be built, patience, hard work, and perseverance are to be put in perspective so that goals, deadlines, and targets can be achieved as doing things in a rush by cutting corners tends to yield errors and mistakes which can or could have been avoided.

* Planning and Time Management

The undertaking of this project taught me the importance of planning and time management. For a project to be built, a plan or schedule has to be designed outlining the various tasks and deadlines to be met.

* Problem-Solving

The development of this project taught me various on how to face and address various barriers and efficient ways of achieving problem-solving.

## 7.4 Challenges Encountered

Throughout the development of the system, the python programming language and its various libraries had to be learned to design the system. Image processing in a complex field that helps machines understand the human-like vision and as such its various complex techniques had to be understood and to also design the system.

Another challenge that was encountered was the finding of the collection of test data to use to evaluate the system. Due to the Covid-19 pandemic, movements were limited and as such, it was a challenge to collect test data and various intersections.

## 7.5 Future Works

The developed version of the density-based traffic control system will be able to achieve the fundamental functionalities of traffic lights. However, there is room for upgrades and other systems can be integrated. The following are future works that can be implemented:

* A red-light violation feature can be added to capture vehicles that speed past an intersection when the lights are red.
* The system can be networked so that it can be controlled or modified from a remote location.
* A feature can be added to encompass pedestrians crossing
* Implementation of the system using night vision cameras/thermal cameras

## 7.6 Conclusion

In conclusion, it can be seen that for a project to be conducted there are various steps and procedures. These various steps and procedures can produce challenges as well be learning curves. This chapter outlined the various challenges faced, learning outcomes, and new skills or attributes gained by the developer.