# CHAPTER 4 – SYSTEMS ANALYSIS AND DESIGN

## 4.1 Introduction

This chapter focuses on the systems analysis design and process. According to (Sommerville, 1977), the systems development life cycle (SDLC) involved in system analysis and design has a fundamental four-phase model (planning, analysis, design, and implementation) common to all information systems development projects.

## 4.2 System Analysis

Harris et al., (2006) simply states that systems analysis and design is an approach to the development of information systems which encompasses the four phases of the systems development life cycle (SDLC). It is conducted for the purpose of studying a system or its parts in order to identify its objectives and it is a problem solving technique that improves the system and ensures that all the components of the system work efficiently to accomplish their purpose (*System Analysis and Design - Overview - Tutorialspoint*, n.d.).

### 4.2.1 Requirements Analysis

Requirement analysis is simply the process of defining user expectations for a new software that being designed or modified in the senses that it helps to discover, analyse, refine, and scrutinize the gathered requirements to make consistent and unambiguous requirements (Gunda, 2008).

### 4.2.1.1 Functional Requirements

According to (Dabbagh et al., 2016),A functional requirement is a requirement that specifies a function that a system or component must be able to perform. The following below are the functional requirements for the system:

* The system shall detect vehicles in a given image.
* The system shall count the number of vehicles in an image.
* The system shall calculate the required allotted time.
* The system shall change the traffic signal based on allotted time.
* The system shall display the required traffic signal to the motor road user.
* The system shall be available 24/7

### 4.2.1.2 Non-Functional Requirements

A non-functional requirement is a statement of how a system must behave, it is a constraint upon the systems behavior (Dabbagh et al., 2016). They specify the criteria that judges the operation of a system, rather than specific system behaviors. The following below are the non-functional requirements for the system: