**Traffic Management**

**Project Proposal**

**Abstract**

This project is intended to develop web based system with mobile for Hawassa traffic control and management system and provides simple and effective way of controlling and managing traffic. Ethiopian Transport authority has been performing complex and risky task with greater responsibility, from these responsibilities recording Drivers full information and town traffic flow control are the major tasks that the office undertakes, which needs efficiency and accuracy. To process this task in efficiency way, the office should take the full information. The project “Traffic Management” has been selected which is aimed for helping the Hawassa Town Transport authority and Traffics police department. Our system will have centralized database and each traffic policemen will have use account that enables them to view and record criminal driver’s status like warning and penalty. Authorized Administrators in the transport authority office will manage the system on their computer browser. They will have privilege to login to the system and they can Register new and view existing Driver Information and record as well as traffic police records.

1. **Introduction**
   1. **Background**

The Ethiopian Road Transport Authority (R.T.A) is a public transport authority based in Addis Ababa, Ethiopia. It was originally founded as the Road Transport Administration in 1967 by proclamation No 256/67 but restructured and became the Road Transport Authority (RTA) in 1976, following proclamation No 107/76. The RTA states that its mission is "to ensure the provision of a modern, integrated and safe Road transport services to meet the needs of all the communities for strong and unitary economic and political system in Ethiopia. In doing so they attempt to promote an efficient road service, to coordinate and strengthen the road traffic safety and to develop the transport data base system to enhance research for the development of the sector.

In 2005, the Ethiopian government reorganized the transport sector and although the previously independent Urban Transport Authority, the Railway Regulatory Authority, the Aviation Authority, the Airport Administration Authority and the Maritime Regulatory Authority merged into the Ethiopian Transport Authority, the Road Transport Authority remained independent.

The Hawassa city road transport is branch of RTA which is responsible to SNNPR Road Transport office.

Existing System in Hawassa city road transport authority is manual record System. It has around 50,000 records of drivers including their name, number, category, age, ID and any information regarding their status like they have punished or not by traffic police. The punishment record has the following information: - name, driver license no, time the event has arrived, place, kind, level, plate number.

The main purpose of Hawassa city road transport office is to give driver license by providing an exam for candidate drivers who finished course from legal Drivers training centers. The exam is checked by computer system (network).as the manager of transport authority of Hawassa city tell us it takes 3sec to check their result. And after that every driver must renewed their license in every two years.

Our system focus on two offices Hawassa city road and transport authority and Hawassa city traffic police.

* 1. **Problem statement**

The data in this system are kept manually especially after each driver is punished which makes it difficult to search that data after several months or years when a traffic police need it to know the profile of the driver, when the driver need it to know his/her profile, to renew his license, to pay his/her penalty and the data will be destroyed by disaster. It takes time to search large number of files.

In addition to this the existing system has several limitations it is time consuming to record and search files, Wastage of material, Duplication of paper, retrieve in bringing document to those who need it, no system for properly transferring or removing of inactive files which are occasional reference documents, Files get lost, Expensive, not efficient, Error prone, Difficulty to integrate data, Data redundancy and Difficulty of locating & finding files dependent each other.

* 1. **OBJECTIVE**

### General Objective

### To change the manual system which exists in Hawassa city traffic control and management system into computerized System and develop a user friendly system that avoids the need for unnecessary physical interaction with the document of Hawassa city traffic control and management system.

### Specific Objective

In order to attain the general objective, the following list of specific objectives is set:

* To make document analysis about traffic management and control system.
* To perform a requirement analysis to find out the system functional and nonfunctional requirements.
* To Design the system using object-oriented models for understanding the system and to make the implementation easy.
* To Design the database for storing data related to Driver, Traffic police and Vehicle using MySQL.
* To implement a web application using PHP, CSS, HTML5 and apache web server.
* To Design web interface that allow authorized user to manipulate the data.
* To Test the performance and reliability of web application.
* To deploy the system

* 1. **Scope**

Although, design concepts, outputs and other components of the Project can be used for whole Ethiopia, the implementation of this project is on only for Hawassa city transport authority. The scope of the project mainly deals with providing information about each traffic polices and drivers, update their profile, accessing drivers profile, register each vehicle information.

The main users of the projects are traffic polices or Members and system Administrators. The scope of this new system development will include all the information that needed to handle any problem that may be face the system during processing data of the traffic polices and drivers record by manually.

* 1. **Tools and Methodology** 
     1. **Tools**

Since Traffic management and control system is a big system, we are design an interactive web based mobile application using android that the authorized user can easily manage and get information from the application and interact with the system.

An interactive web application design requires the following

* Web Server software
* Server side scripting language
* Database system
* Client side programing language

For this specific project we will use

1. Programing and scripting language

* Server side scripting language (Back-end)
* PHP scripting language
* Client side programing language (Front-end)
* HTML5
* Bootstrap
* JQuery mobile
* CSS
* Java-script
* Java for Android
* Other
* Ajax- **A**synchronous **J**avaScript and **X**ML.
* JQuery - JavaScript Library
* JSON- **J**ava**S**cript **O**bject **N**otation

2. Software

* Microsoft Visio and Astah UML for system prototype design
* Microsoft word and power point
* WAMP (apache and MYSQL)
* NetBeans
* Adobe Photoshop
* Android Studio

**Why PHP?**

There are several types of web programming language that are used for making a site more dynamic and interactive. But, for this project we are choosing PHP scripting to make our system more dynamic and interactive. PHP is a widely-used, free, fast and easy, cross platform and efficient alternative to competitors such as Microsoft's ASP.

**Why MYSQL?**

There are several reasons to use MySQL.

* It’s quick and powerful
* It’s improving all the time
* It’s free
* Handles large database.
* All columns have default values. You can use insert a subset of a table’s columns; those columns that are not explicitly given values are set to their default value.

**Why Ajax?**

* It is a technique for creating fast and dynamic web pages and web application.
* It allows web pages to be updated asynchronously by exchanging small amounts of data with the server behind the scenes. This means that it is possible to update parts of a web page, without reloading the whole page.

**Why JQuery?**

* It is a lightweight, "write less, do more", and JavaScript library.

**Why java?**

* Java is self-interpreted programing language.

**Hardware requirements**

1. During Development and design
   1. Wireless APN
   2. PC
   3. Android Phone
2. During implementation
   1. Web server
   2. NAS
   3. Android Phone

### Methodology

Data Collection

The method which enables us to capture information about requested system is called Methodology. The methods we employed in the data collection are site observation, interviews and document analysis that are references or indirectly related to Hawassa city traffic control management system.

* Site observation: actual observation of field officers (traffic police) at work.
* Interview: asking the employee of the organization and See Appendix ---
* Document analysis: reading the document available in the organization. See Appendix --.

Design and Implementation Methodology

The team decides to use object –oriented methodology because it is Easier to maintain, understood by the group members, Unaffected to change, **it is flexible** in terms of using implementations, Ease of understanding object-oriented models due to a consistent underlying representation throughout the development process, Ease of modification and extensibility of object-oriented models and Ease of reuse of object components from previously designed systems.