**Traffic Management**

**(ch2)**

1. **Requirement analysis and Elicitation** 
   1. **Existing system analysis**

### Currently Hawassa City Traffic management and control system is operated manually. This system has some drawbacks. Registering new certified Driver, updating his penalty record may lead to serious mistakes.

### Some of the activities which are performed under the existing systems are:

* Accept new driver’s information from training centers
* Examine them and give license cards
* Record traffic accident details
* Record and update Vehicle information

### Problem of the Existing system

### Manual processing such as storing, retrieving of data and information, the current system has the following problems:

**Performance problem**

The current system unable to perform tasks and activities with efficient and required time. It is tedious and not fast communication.

**Information Problem**

* Lose of data may occur.
* Due to manually collecting of data, there is a redundant record and inconsistency problems.
* Inaccurate data and information may produced
* Incorrect information leads to poor decision making
* Poor flow of information between City traffic police and Transport office as well as Higher Authorities like Zone and Regional Offices.

**Data storage problem**

* Lack of a well-organized database system
* Data are not easily accessible due to its integration and placed in different location
* Difficult to update information
* Data redundancy that leads to inconsistency
* It is exposed to Disaster like, Fire, Flood, Volcanic eruption

**Efficiency Problem**

The efficiency of the existing system not optimal, because

* Storing and locating data takes much more time
* Redundancy flow of information

**Security and control problem**

   The current system can be accessed by unauthorized person, since it doesn’t have any authentication and authorization system,

* 1. **Overview of proposed system**

### Hawassa city traffic control and management system is a traffic control management Mobile app and website that provide simple and effective way of controlling and managing traffic. The project “Hawassa city traffic control and management system” is developed in Java for Android, HTML5, JQuery, Ajax and PHP scripting language which mainly focuses on basic operations in a traffic like registering new Driver, new Traffic Police officer, new vehicle, and updating new information and searching from database.

### Hawassa city traffic control and management system is web and mobile application, designed to help driver and traffic police. Our software is easy to use for both beginners and advanced users. It features a familiar, an attractive user interface, combined with strong searching Insertion and reporting capabilities.

* 1. **Limitation of the project**

### The Ethiopian transport authority system is very wide institution and the activities also wide. So by understanding the time to finish the project there is necessarily limit to fulfill the required goal in specified time.

The new system cannot include the following modules: -

* The scope of our project is only for Hawassa city.
* Record of each vehicle.
* It is only used for android phone.
* Our system needs network connection every where
  1. **REQUIREMENTS**

**User Requirements**

### User requirements are statements, in a natural language plus diagrams, of what services the system is expected to provide to the system users and the constraints under which it must operate. That describes user goals or tasks that the users must be able to perform with the system. User requirements therefore describe what the user will be able to do with the system.

* The user interface shall be menu driven, it shall provide dialog boxes; help screens, drop down lists, radio buttons, check boxes and text boxes for user input.
* The navigation from one screen to the other must be easy.
* The bill officer wants to get real report according to the report type.
* Buttons and labels would be indicating exact function that it represented known, example submit represent save, add but not retrieve from database.
* Drivers, Vehicle and traffic police must fullfil the business rule to be registered.
* All the system function will be compatible with the user.

**Functional Requirement**

### Functional requirements are the description of the facility or feature required. Functional requirements deal with what the system should do or provide for users. They include description of the required functions, outlines of associated reports or online queries, and details of data to be held in the system. The functional requirement of our system include the following.

**Administrator**

REQ-1: The system shall require login before provide any function for administrator.

REQ-2: The system shall display an error message “Incorrect password or username” when administrator try to login with wrong password or username.

REQ-3: The system shall allow the administrator to control the overall activities in the system.

REQ-4: The system shall allow administrator to change his /her account information.

REQ-5: The system should allow the administrator to create user account for the system user.

REQ-6: The system shall Inquiry all current enrolled/registered users to view their details except password.

REQ-7: The system shall remove wrong entries from the system.

REQ-8: the system shall view reports in different operations in the system.

REQ-9: The system shall give permission categorically, also enabling or disabling of user’s permission can be set.

REQ-10: The system shall give the administrator to enable and disable users of the system.

REQ-11: The system shall ensure that the information entered is of the correct format.

REQ-12: The system should generate report.

**Staff user**

REQ-1: The system shall require login before provide any function for any staff user.

REQ-2: The system shall display an error message “Incorrect password or username” when staff user tries to login with wrong password or username.

REQ-3: The system shall allow the staff user to register the drivers (here the driver must pass the exam provided by the organization).

REQ-4: The system shall allow the stuff user to change his/her account information Example password, profile picture.

REQ-5: The system shall import vehicle information from vehicle database when required.

REQ-7: The system shall allow uploading notice from the staff members/users.

REQ-8: The system shall view the academic calendar to the staff members’.

REQ-9: The system should allow staff user to search for any Driver and vehicle detailed information.

**Drivers:**

REQ-1: The system shall authenticate before accessing system.

REQ-2: The system shall allow drivers to change his /her account password.

REQ-3: The system shall allow drivers to view his/her detail information or records.

**Vehicle:**

REQ-1: The system shall require login before allowing manipulation of vehicle information.

REQ-2: The system shall allow the authorized user to modify vehicle information example vehicle type, level, owner.

REQ-3: The system shall allow search for any vehicle detailed information.

REQ-4: The system shall approve vehicle…………….

REQ-5: The system shall generate annual reports of the vehicle.

**Traffic police:**

REQ-1: The system shall require login before provide any function for Traffic police.

REQ-2: The system shall display an error message “Incorrect password or username” when Traffic police try to login with wrong password or username.

REQ-3: The system shall allow Traffic police to change his /her account information except user name.

REQ-4: The system should allow Traffic police to view drivers detail information.

REQ-5: The system shall calculate number of records of the Driver for any Traffic police.

REQ-4: The system shall allow Traffic police to punish the driver and update Driver details to the database.

REQ-7: The system shall search for any driver detailed information to the Traffic police.

REQ-8: The system shall approve Driver License and vehicle plate number.

REQ-9: ?Number case

REQ-10: The system shall send SMS for the Driver after penalties.

**Traffic police Administrator(TPA)**

REQ-1: The system shall require login before provide any function for TPA.

REQ-2: The system shall display an error message “Incorrect password or username” when TPA try to login with wrong password or username.

REQ-3: The system shall allow the TPA to control the overall activities of the Traffic police.

REQ-4: The system shall allow TPA to change his /her account information.

REQ-5: The system should allow the TPA to create user account for the Traffic Police.

REQ-6: The system shall Inquiry all current enrolled/registered Traffic police to view their details except password.

REQ-7: The system shall give permission categorically, also enabling or disabling of traffic Police permission can be set.

REQ-8: The system shall allow the TPA to send reward notification to the Traffic Police.

**Non-Functional Requirements**

### Non-functional requirements are requirements that are not directly concerned with the specific services delivered by the system to its users. They may relate to emergent system properties such as reliability, response time, and store occupancy. Alternatively, they may define constraints on the system implementation such as the capabilities of I/O devices or the data representations used in interfaces with other systems. Non-functional requirements, such as performance, security, or availability, usually specify or constrain characteristics of the system as a whole.

**Usability**

* The system provides a help and support menu in all interfaces for the user to interact with the system.
* The user can use the system (app) by reading help and support.
* The user can use the system (app) by looking descriptive icons

**Security**

* The system provides username and password to prevent the system from unauthorized access.
* The user’s password must be greater than eight characters.
* Traffic Polices can be registered by the authorized staff admin only
* Drivers registered by staff admins

**Performance**

* The system response time for every instruction conducted by the user must not exceed more than a minimum of 10 seconds.
* The system should have high performance rate when executing user’s input and should be able to provide response within a short time span usually 50 second for highly complicated task and 20 to 25 seconds for less complicated task.

**Availability**

* The system should always be available on web and mobile phone app for access at 24 hours, 7 days a week. Also in the occurrence of any major system malfunctioning, the system should be available in hours.
* The system should be available on the internet always to allow administrators keep in touch everywhere