# JIGANASA STUDENT'S STUDY PROJECT REPORT ON TRAFFIC E-CHALLANAS



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## **CERTIFICATE**

This is to certify that the Project Report entitled "TRAFFIC E-CHALLANAS", submitted to the Commissioner of Collegiate Education Hyderabad, for the Best student Project award in JIGNASA Competition, was carried out by the following students under my guidance.

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Signature of the Guide

Signature of the Guide

# **DECLARATION**

We, hereby declare that the project report entitled "TRAFFIC E-CHALLANAS" submitted to the Commissioner of Collegiate Education Hyderabad, for the Best student Project award in JIGNASA Competition is a Bonafied work under taken by us and it is not submitted to any other University or Institution for the award of any Degree/ Diploma certificate on any time before.

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# CONTENTS

TITLE	PAGE NO
1. INTRODUCTION	
1.1 Introduction to Project	1
1.2 Purpose of the Project	1
1.3 Problems in Existing System	2
1.4 Solution of these Problems	2
2. SYSTEM ANALYSIS	3
2.1 Introduction	3
2.2 Analysis Model	3
2.3 Study of the System	5
2.4 System Requirement Specifications	7
2.5 Proposed System	7
2.6 Input and Output	7
3. FEASIBILITY REPORT	9
3.1 Technical Feasibility	9
3.2 Operational Feasibility	10
3.3 Economical Feasibility	10
4. SYSTEM DESIGN	11
4.1 Introduction	11
4.2 E-R Diagram	11
4.3 Data Flow Diagrams	12
4.4 Data Dictionary	18
4.5 UML Diagrams	20
5. OUTPUT SCREENS	31
6. SYSTEM SECURITY	34
6.1 Client Side Validations	34
6.2 Server Side Validations	34
7.CONCLUSION	36

## **1. INTRODUCTION**

## **1.1 INTRODUCTION TO PROJECT**

The objective behind developing Traffic e-Challanas is to save the customers time and money in the process of challan payments compared to those incurred from attending as manual.

### **Features include:**

- Provide rich user interface and secure registration.
- The Employees information files can be stored in centralized database which can be maintained by the system.
- Data Reports.
- Maintenance of profile details of the employees, and retrievals as and when required.
- Customer Challanas Details.
- Customer Challan Payment Details.
- Vehicle Registration Details.
- Authentication is provided for this application. Only registered users can access

### **1.2 PURPOSE OF THE PROJECT**

In this system Employees can add the fines to the customer based on the offence. Customers can check their challan status by entering vehicle No and he can pay the fine amount through credit card.

## Scope:

- Admin add the Traffic Zones and Offences
- Admin add the Employees and assign to Traffic zones.
- Admin Manage the offence charges.
- Employee add the Customer fines
- Employee can update his profile and change password.
- Customer can check his challan status
- Customer can pay his challan payments.
- Admin can take backup of all kind of data.
- Admin generate the reports of challanas, vehicles and Employees.
- Communication provided through email.

### **1.3 PROBLEMS IN EXISTING SYSTEM**

- 1. Does not provide rich user interface.
- Existing system user's needs to save his information in the form of excel sheets or Disk Drives.
- 3. It doesn't provide the challan payments through online.
- 4. There is no sharing possibility if the data is in the form of paper or Disk drives.
- 5. There is very less security for saving data.
- 6. There is no authentication.
- 7. In this system there is no report generation.
- 8. There is no web service concept in the existing system.
- 9. There is no communication between users.

## **1.4 SOLUTION OF THESE PROBLEMS**

The development of the new system objective is to address the solutions for the drawbacks of existing problem domain.

The development of this new system contains the following activities, which try to automate the entire process keeping in the view of database integration approach.

- 1. User Friendliness is provided in the application with various controls provided by system Rich User Interface.
- 2. Provides secure registration and profile management of all users.
- 3. It provides online challan payments through Credit Card / Debit Card.
- 4. It can be accessed over the Intranet.
- 5. Customer can check his challan status.
- 6. The Employees information files can be stored in centralized database which can be maintained by the system.
- 7. Authentication is provided for this application. Only registered users can access.
- 8. Report generation feature is provided to generate different kinds of data reports.
- 9. This system is developed by using webservices.
- 10. In this system communication provided between users through email.

#### 2. SYSTEM ANALYSIS

#### **2.1 INTRODUCTION**

After analyzing the requirements of the task to be performed, the next step is to analyze the problem and understand its context. The first activity in the phase is studying the existing system and other is to understand the requirements and domain of the new system. Both the activities are equally important, but the first activity serves as a basis of giving the functional specifications and then successful design of the proposed system. Understanding the properties and requirements of a new system is more difficult and requires creative thinking and understanding of existing running system is also difficult, improper understanding of present system can lead diversion from solution.

#### **2.2 ANALYSIS MODEL**

#### **SDLC METHDOLOGIES**

This document play a vital role in the development of life cycle (SDLC) as it describes the complete requirement of the system. It means for use by developers and will be the basic during testing phase. Any changes made to the requirements in the future will have to go through formal change approval process.

**SPIRAL MODEL** was defined by Barry Boehm in his 1988 article, "A spiral Model of Software Development and Enhancement. This model was not the first model to discuss iterative development, but it was the first model to explain why the iteration models.

As originally envisioned, the iterations were typically 6 months to 2 years long. Each phase starts with a design goal and ends with a client reviewing the progress thus far. Analysis and engineering efforts are applied at each phase of the project, with an eye toward the end goal of the project.

The steps for Spiral Model can be generalized as follows:

- The new system requirements are defined in as much details as possible. This usually involves interviewing a number of users representing all the external or internal users and other aspects of the existing system.
- A preliminary design is created for the new system.

- A first prototype of the new system is constructed from the preliminary design. This is usually a scaled-down system, and represents an approximation of the characteristics of the final product.
- A second prototype is evolved by a fourfold procedure:
  - 1. Evaluating the first prototype in terms of its strengths, weakness, and risks.
  - 2. Defining the requirements of the second prototype.
  - 3. Planning an designing the second prototype.
  - 4. Constructing and testing the second prototype.
- At the customer option, the entire project can be aborted if the risk is deemed too great. Risk factors might involve development cost overruns, operating-cost miscalculation, or any other factor that could, in the customer's judgment, result in a less-than-satisfactory final product.
- The existing prototype is evaluated in the same manner as was the previous prototype, and if necessary, another prototype is developed from it according to the fourfold procedure outlined above.
- The preceding steps are iterated until the customer is satisfied that the refined prototype represents the final product desired.
- The final system is constructed, based on the refined prototype.
- The final system is thoroughly evaluated and tested. Routine maintenance is carried on a continuing basis to prevent large scale failures and to minimize down time.



The following diagram shows how a spiral model acts like:

### 2.3 STUDY OF THE SYSTEM

In the flexibility of the uses the interface has been developed a graphics concept in mind, associated through a browser interface. The GUI'S at the top level have been categorized as

- 1. Administrative user interface
- 2. The operational or generic user interface

The administrative user interface concentrates on the consistent information that is practically, part of the organizational activities and which needs proper authentication for the data collection. The interfaces help the administrations with all the transactional states like Data insertion, Data deletion and Data updating along with the extensive data search capabilities. The operational or generic user interface helps the users upon the system in transactions through the existing data and required services. The operational user interface also helps the ordinary users in managing their own information helps the ordinary users in managing their own information in a customized manner as per the assisted flexibilities

### NUMBER OF MODULES

The system after careful analysis has been identified to be presented with the following modules:

- 1. Administrator
- 2. Customer
- 3. Employee
- 4. Web Registration
- 5. Reports
- 6. Authentication

#### Administrator

- 1. He is the person who can manage Employees, Offences, Traffic Zones.
- 2. He can assign employees to traffic zones.
- 3. He can take care of maintain the monthly database backup.
- 4. He can generate the reports of employees, Customers and challanas.
- 5. He can manage the Offence charges based on vehicle type.

#### Customer

- 1. He can Check the challan status by vehicle No
- 2. He can pay his challan payments by using credit card.

### Employee

- 1. He has to login with Username and Password.
- 2. He can change his profile and password also.
- 3. He can add fines to the customer based on offence.

#### Web Registration

The system has a process of registration. Every User need to submit his complete details in the form of registration. Whenever a User registration completed automatically he/she can get a user id and password. By using that user id and password he/she can log into the system.

## Reports

Different kinds of reports are generated by the system.

- 1. Customers Report
- 2. Employees Report
- 3. Challanas Report.

### Authentication:

Authentication is nothing but providing security to the system. Here every must enter into the system throw login page. The login page will restrict the UN authorized users. A user must provide his credential like user Id and password for log into the system. For that the system maintains data for all users. Whenever a user enters his user id and password, it checks in the database for user existence. If the user is exists he can be treated as a valid user. Otherwise the request will throw back.

## 2.4 System Requirement Specifications

## Hardware Requirements:

- PIV 2.8 GHz Processor or Above
- RAM 512MB or Above
- HDD 40 GB Hard Disk Space or Above

### **Software Requirements:**

- WINDOWS OS (XP / 2000 / 2003 Server)
- Visual Studio .Net 2008 Enterprise Edition
- Internet Information Server 5.0 (IIS)
- Visual Studio .Net Framework (Minimal for Deployment) version 3.5
- SQL Server 2005 Enterprise Edition

## 2.5 PROPOSED SYSTEM

To debug the existing system, remove procedures those cause data redundancy, make navigational sequence proper. To provide information about users on different level and also to reflect the current work status depending on organization. To build strong password mechanism.

#### **NEED FOR COMPUTERIZATION**

We all know the importance of computerization. The world is moving ahead at lightning speed and everyone is running short of time. One always wants to get the information and perform a task he/she/they desire(s) within a short period of time and too with amount of efficiency and accuracy. The application areas for the computerization have been selected on the basis of following factors:

- Minimizing the manual records kept at different locations.
- There will be more data integrity.
- Facilitating desired information display, very quickly, by retrieving information from users.
- Facilitating various statistical information which helps in decision-making?
- To reduce manual efforts in activities that involved repetitive work. Updating and deletion of such a huge amount of data will become easier.

### FUNCTIONAL FEATURES OF THE MODEL

As far as the project is developed the functionality is simple, the objective of the proposal is to strengthen the functioning of Audit Status Monitoring and make them effective and better. The entire scope has been classified into five streams knows as Coordinator Level, management Level, Auditor Level, User Level and State Web Coordinator Level. The proposed software will cover the information needs with respect to each request of the user group viz. accepting the request, providing vulnerability document report and the current status of the audit.

#### **INPUTS AND OUTPUTS**

The major inputs and outputs and major functions of the system are follows:

#### **Inputs:**

- 1. Admin enter his user id and password for login.
- 2. Admin Add the Employees Details into the System.
- 3. Admin add the Offences, Traffic zones and Offence charges.
- 4. Employee enters his user id and password for login.
- 5. Employee inserts fines to the customer.
- 6. Customer enters his vehicle No to check challan status.

### **Outputs:**

- 1. Admin can get the Challanas Report.
- 2. Employees can get their profile details.
- 3. Customer can get their challan status
- 4. Admin can get all the employee details.
- 5. Different kinds of reports are generated.

## **3. FEASIBILITY REPORT**

Preliminary investigation examine project feasibility, the likelihood the system will be useful to the organization. The main objective of the feasibility study is to test the Technical, Operational and Economical feasibility for adding new modules and debugging old running system. All system is feasible if they are unlimited resources and infinite time. There are aspects in the feasibility study portion of the preliminary investigation:

- Technical Feasibility
- Operational Feasibility
- Economical Feasibility

### **3.1. TECHNICAL FEASIBILITY**

The technical issue usually raised during the feasibility stage of the investigation includes the following:

- Does the necessary technology exist to do what is suggested?
- Do the proposed equipments have the technical capacity to hold the data required to use the new system?
- Will the proposed system provide adequate response to inquiries, regardless of the number or location of users?
- Can the system be upgraded if developed?
- Are there technical guarantees of accuracy, reliability, ease of access and data security?

Earlier no system existed to cater to the needs of 'Secure Infrastructure Implementation System'. The current system developed is technically feasible. It is a web based user interface for audit workflow at NIC-CSD. Thus it provides an easy access to the users. The database's purpose is to create, establish and maintain a workflow among various entities in order to facilitate all concerned users in their various capacities or roles. Permission to the users would be granted based on the roles specified. Therefore, it provides the technical guarantee of accuracy, reliability and security. The software and hard requirements for the development of this project are not many and are already available in-house at NIC or are available as free as open source. The work for the project is done with the current equipment and existing software technology. Necessary bandwidth exists for providing a fast feedback to the users irrespective of the number of users using the system.

#### **3.2. OPERATIONAL FEASIBILITY**

Proposed projects are beneficial only if they can be turned out into information system. That will meet the organization's operating requirements. Operational feasibility aspects of the project are to be taken as an important part of the project implementation. Some of the important issues raised are to test the operational feasibility of a project includes the following: -

- Is there sufficient support for the management from the users?
- Will the system be used and work properly if it is being developed and implemented?
- Will there be any resistance from the user that will undermine the possible application benefits?

This system is targeted to be in accordance with the above-mentioned issues. Beforehand, the management issues and user requirements have been taken into consideration. So there is no question of resistance from the users that can undermine the possible application benefits.

The well-planned design would ensure the optimal utilization of the computer resources and would help in the improvement of performance status.

#### **3.3. ECONOMICAL FEASIBILITY**

A system can be developed technically and that will be used if installed must still be a good investment for the organization. In the economical feasibility, the development cost in creating the system is evaluated against the ultimate benefit derived from the new systems. Financial benefits must equal or exceed the costs.

The system is economically feasible. It does not require any addition hardware or software. Since the interface for this system is developed using the existing resources and technologies available at NIC, There is nominal expenditure and economical feasibility for certain.

#### **4. SYSTEM DESIGN**

#### **4.1. INTRODUCTION**

Software design sits at the technical kernel of the software engineering process and is applied regardless of the development paradigm and area of application. Design is the first step in the development phase for any engineered product or system. The designer's goal is to produce a model or representation of an entity that will later be built. Beginning, once system requirement have been specified and analyzed, system design is the first of the three technical activities -design, code and test that is required to build and verify software.

The importance can be stated with a single word "Quality". Design is the place where quality is fostered in software development. Design provides us with representations of software that can assess for quality. Design is the only way that we can accurately translate a customer's view into a finished software product or system. Software design serves as a foundation for all the software engineering steps that follow. Without a strong design we risk building an unstable system – one that will be difficult to test, one whose quality cannot be assessed until the last stage.

During design, progressive refinement of data structure, program structure, and procedural details are developed reviewed and documented. System design can be viewed from either technical or project management perspective. From the technical point of view, design is comprised of four activities – architectural design, data structure design, interface design and procedural design.

#### **4.2 E-R DIAGRAMS**

The relation upon the system is structure through a conceptual ER-Diagram, which not only specifics the existential entities but also the standard relations through which the system exists and the cardinalities that are necessary for the system state to continue.

The entity Relationship Diagram (ERD) depicts the relationship between the data objects. The ERD is the notation that is used to conduct the date modeling activity the attributes of each data object noted is the ERD can be described resign a data object descriptions.

The set of primary components that are identified by the ERD are

- Data object
- Relationships
- Attributes
- Various types of indicators.

The primary purpose of the ERD is to represent data objects and their relationships.



#### **4.3 DATA FLOW DIAGRAMS**

A data flow diagram is graphical tool used to describe and analyze movement of data through a system. These are the central tool and the basis from which the other components are developed. The transformation of data from input to output, through processed, may be described logically and independently of physical components associated with the system. These are known as the logical data flow diagrams. The physical data flow diagrams show the actual implements and movement of data between people, departments and workstations.

The development of DFD'S is done in several levels. Each process in lower level diagrams can be broken down into a more detailed DFD in the next level. The lop-level diagram is often called context diagram. It consists a single process bit, which plays vital role

in studying the current system. The process in the context level diagram is exploded into other process at the first level DFD.

The idea behind the explosion of a process into more process is that understanding at one level of detail is exploded into greater detail at the next level. This is done until further explosion is necessary and an adequate amount of detail is described for analyst to understand the process.

Larry Constantine first developed the DFD as a way of expressing system requirements in a graphical from, this lead to the modular design.

A DFD is also known as a "bubble Chart" has the purpose of clarifying system requirements and identifying major transformations that will become programs in system design. So it is the starting point of the design to the lowest level of detail. A DFD consists of a series of bubbles joined by data flows in the system.

### **DFD Diagrams**

Context Level Diagram (O Level)



Traffic e Challanas

## Login DFD



## **Admin Activities DFD**

1<sup>st</sup> Level



```
2<sup>nd</sup> Level
```



3<sup>rd</sup> Level



## Employee

1<sup>st</sup> Level



## Customer

# 1<sup>st</sup> Level



## Customer

2<sup>nd</sup> Level



## **4.4 DATA DICTIONARY**

After carefully understanding the requirements of the client the entire data storage requirements are divided into tables. The below tables are normalized to avoid any anomalies during the course of data entry.

# Tables Design:

	Column Name	Data Type	Allow Nulls
P	UserId	int	
	UserName	varchar(50)	Image: A start of the start
	Password	varchar(50)	Image: A start of the start
	FirstName	varchar(50)	
	MiddleName	varchar(50)	
	LastName	varchar(50)	Image: A start of the start
	DOB	datetime	
	DOR	datetime	
	Address	varchar(1000)	
	Email	varchar(50)	<ul> <li>Image: A set of the set of the</li></ul>
	PhoneNo	varchar(50)	Image: A start of the start
	Image	varbinary(MAX)	Image: A start of the start
	FileName	varchar(250)	
	Role	varchar(50)	<ul> <li>Image: A set of the set of the</li></ul>
	HintQuestion	varchar(50)	Image: A start of the start
	Answer	varchar(50)	Image: A start of the start
	Status	varchar(50)	

	Column Name	Data Type	Allow Nulls
8	VehicleTypeId	int	
	TypeName	varchar(50)	Image: A start of the start
	Description	varchar(500)	

	Column Name	Data Type	Allow Nulls
	SNo	int	
8	VehicleTypeId	int	
8	OffenceId	int	
	FineAmount	decimal(8, 2)	<b>~</b>
	UserCharges	decimal(8, 2)	<b>~</b>

	Column Name	Data Type	Allow Nulls
8	VehicleNo	varchar(50)	
	UserId	int	Image: A start of the start
	VehicleTypeId	int	<ul> <li>Image: A start of the start of</li></ul>
	DOR	datetime	Image: A start of the start

	Column Name	Data Type	Allow Nulls
P	ChallanNo	int	
	UserId	int	
	VehicleNo	varchar(50)	<b>V</b>
	OffenceId	int	Image: A start of the start
	OffenceDate	datetime	
	PlaceOfViolation	varchar(250)	Image: A start of the start
	FineAmount	decimal(8, 2)	<b>V</b>
	UserCharges	decimal(8, 2)	Image: A start of the start
	TotalAmount	decimal(8, 2)	
	Status	varchar(50)	<b>V</b>

	Column Name	Data Type	Allow Nulls
P	PaymentId	int	
	ChallanNo	int	<ul> <li>Image: A set of the set of the</li></ul>
	CreditCardNo	varchar(50)	<ul> <li>Image: A start of the start of</li></ul>
	Code	varchar(50)	<ul> <li>Image: A start of the start of</li></ul>
	PaymentDate	datetime	<ul> <li>Image: A start of the start of</li></ul>

	Column Name	Data Type	Allow Nulls
8	OffenceId	int	
	OffenceName	varchar(150)	<ul> <li>Image: A set of the set of the</li></ul>
	Description	varchar(500)	<ul> <li>Image: A set of the set of the</li></ul>

	Column Name	Data Type	Allow Nulls
8	TrafficZoneId	int	
	ZoneName	varchar(50)	<ul> <li>Image: A set of the set of the</li></ul>
	Description	varchar(500)	<b>~</b>
	OfficerId	int	<ul> <li>Image: A set of the set of the</li></ul>
	Status	varchar(50)	<b>~</b>

## 4.5 UML DIAGRAMS

# Use Case Diagrams:



## Over All System Use Case Diagram:



## Activity Diagrams: Registration Activity Diagram:



Login Activity Diagram:



## Admin Activity Diagram:



## **Employee Activity Diagram**



## **RTO Activity**



## **Customer Activity**



## **Sequence Diagrams**

## Login Sequence



## Admin Sequence to Add Employees



## Admin Sequence to Add Offences



## Admin Sequence to Add Offence Charges





## **Employee Sequence to Add Customer Fines**

## EMP Sequence To Update Profile







## **Customer Sequence to Challan Payments**



# **OUTPUT SCREENS**











🚰 Untitled Page - Microsoft Internet Explorer	
File Edit View Favorites Tools Help	A.
🚱 Back + 🕥 - 💌 😰 🏠 🔎 Search 👷 Favorites 🚱 🔗 + 🌺 📧 + 🛄 🌠 🏭 🌋	
Address 🕖 http://localhost:1095/Traffic-e-Challanas_Code/Admin/Reports/frmCustomersReport.aspx	🖌 🄁 Go 🛛 Links 🂙
Traffic e Challanas	
Home   Manage Profile   Offences   Employees   Traffice Zones   Mails   Reports   SignOut           Customers Report           From Date         10/10/2009           To Date         10/30/2009           GetReport	l. E
CustomerName VehicleNo VehicleType DOR ContactNo Address	
Medak Kiran AP09AR999 4 wheelers 14/10/2009 9214758630	
Venkata AP16AB2147 2 wheeler 12/10/2009 9963457812	
vishnu AP16BC4578 3 wheelers 14/09/2009 9848275103	
Ravi AP20BD2057 4 wheelers 21/09/2009 9347320157	
Print Report	Local intranet

#### SYSTEM SECURITY

System security refers to various validations on data in form of checks and controls to avoid the system from failing. It is always important to ensure that only valid data is entered and only valid operations are performed on the system. The system employees two types of checks and controls:

#### **6.1 CLIENT SIDE VALIDATION**

Various client side validations are used to ensure on the client side that only valid data is entered. Client side validation saves server time and load to handle invalid data. Some checks imposed are:

- VBScript in used to ensure those required fields are filled with suitable data only. Maximum lengths of the fields of the forms are appropriately defined.
- Forms cannot be submitted without filling up the mandatory data so that manual mistakes of submitting empty fields that are mandatory can be sorted out at the client side to save the server time and load.
- Tab-indexes are set according to the need and taking into account the ease of user while working with the system.

## **6.2 SERVER SIDE VALIDATION**

Some checks cannot be applied at client side. Server side checks are necessary to save the system from failing and intimating the user that some invalid operation has been performed or the performed operation is restricted. Some of the server side checks imposed is:

- Server side constraint has been imposed to check for the validity of primary key and foreign key. A primary key value cannot be duplicated. Any attempt to duplicate the primary value results into a message intimating the user about those values through the forms using foreign key can be updated only of the existing foreign key values.
- User is intimating through appropriate messages about the successful operations or exceptions occurring at server side.
- Various Access Control Mechanisms have been built so that one user may not agitate upon another. Access permissions to various types of users are controlled according to the organizational structure. Only permitted users can log on to the system and can have access according to their category. User- name, passwords and permissions are controlled o the server side.
- Using server side validation, constraints on several restricted operations are imposed.

#### CONCLUSION

It has been a great pleasure for me to work on this exciting and challenging project. This project proved good for me as it provided practical knowledge of not only programming in ASP.NET and C#.NET web based application and no some extent Windows Application and SQL Server, but also about all handling procedure related with **"Traffic e-Challanas".** It also provides knowledge about the latest technology used in developing web enabled application and client server technology that will be great demand in future. This will provide better opportunities and guidance in future in developing projects independently.

#### **BENEFITS:**

The project is identified by the merits of the system offered to the user. The merits of this project are as follows: -

- It's a web-enabled project.
- This project offers user to enter the data through simple and interactive forms. This is very helpful for the client to enter the desired information through so much simplicity.
- The user is mainly more concerned about the validity of the data, whatever he is entering. There are checks on every stages of any new creation, data entry or updation so that the user cannot enter the invalid data, which can create problems at later date.
- Sometimes the user finds in the later stages of using project that he needs to update some of the information that he entered earlier. There are options for him by which he can update the records. Moreover there is restriction for his that he cannot change the primary data field. This keeps the validity of the data to longer extent.
- User is provided the option of monitoring the records he entered earlier. He can see the desired records with the variety of options provided by him.
- From every part of the project the user is provided with the links through framing so that he can go from one option of the project to other as per the requirement. This is bound to be simple and very friendly as per the user is concerned. That is, we can sat that the project is user friendly which is one of the primary concerns of any good project.
- Data storage and retrieval will become faster and easier to maintain because data is stored in a systematic manner and in a single database.
- Decision making process would be greatly enhanced because of faster processing of information since data collection from information available on computer takes much less time then manual system.

- Allocating of sample results becomes much faster because at a time the user can see the records of last years.
- Easier and faster data transfer through latest technology associated with the computer and communication.
- Through these features it will increase the efficiency, accuracy and transparency,