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| Driving School Registration System | September 6  2011 | |
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# ABSTRACT

In today’s world, driving has become one of the most important human need rather than a luxury. But not only is this true, in a land - locked country like Malawi, there is more demand for well qualified drivers to ferry goods from all entry points to inland Malawi.

With such kind of thinking driving schools have emerged all over the country to train professional and nonprofessional drivers to meet the ever growing demand for more drivers.

While there exists such kind of demand, observation has shown that most of these schools don’t have proper ICT systems in place to manage such kind of training schools as most of these schools usually use manual systems which have several problems as opposed to today’s world which needs well managed information systems to help in such environments.

As such, an ICT system is to be developed to replace such information system in order to provide a better controlled and efficient environment which will meet the needs of the days services.

# INTRODUCTION

Masache Boarding Driving School is one kind of such schools located in Lilongwe in Area 24 close opposite the Ngwenya Market. It has 12 members of staff. It provides five types of driving lessons for all kinds of vehicles. Students come all over the country to be trained at this school because of it well known record for zero failure. Because of this more students are flocking to this school, as a good system is to be developed to many this bigger number of students that registers at this school. The school has a day and boarding facility which provide efficient time. The school has one computer which is used only for installing information summaries in an Excel spread sheet.

Currently the school runs all its services manually as already stated earlier, that includes modules like:

* Student registration
* Students Lessons
* Finance
* Vehicle Fleet Control
* Reports

In order to give the best service at this school, a Driving School Registration System is needed to manage the student registration, so that student details are easily stored and retrieved. The system will also support the collection of schools fees, the scheduling of classes, the management of a fleet of vehicles and the production of reports

The modules to be involved will be User Authentication Module, Student Registration Module, Class scheduling Module, Fees Collection/ Finance Module, Fleet Control Module, Report Module.

Students at the school come to register at the reception. They are asked a kind of training they want.  
Students are trained in the following classes:

* Class A training for motorbikes
* Class B training for small cars
* Class C 1 training for heavy goods
* Class CE training for articulated heavy goods vehicles
* PSV special training for passenger vehicles.

Once a student has been registered in class, He / she is asked the mode of how he / she wants the selected training to be rendered which are fulltime time boarding, full time day training and Up hourly training.

The students are allowed to pay their fees in 3 varying Instalments but the first instalment is paid 50% of the whole training and the other instalments follows anyhow but at the end of the training the fees must be paid fully before leaving the institution

## 

## Organisational Structure

The organization structure of the school is as below.

*Fig One: School’s Organogram*

Director

Vehicle Fleet Controller

Accounts Clerk

Instructor(6)

Receptionist

Office Assistant

Chief Instructor

# CLASSES AND OTHER LESSONS ON OFFER

At this school there are four major classes which are rendered to the clients.

* Class A training for motorbikes this is a kind of training which is rendered to students who wants to use motorbikes at their starting points, this training last for 31 days
* Class B , the training is given to students who wants to drive small vehicles(Light Goods) which are less than 3.5 tonner, the training is run for 30 days as the others.
* Class C1, the training is given to students who want to drive heavy goods of more than 3 to 16 tonner vehicle and the training runs for 31 days.
* Class CE is the training for students who wants to drive heavy goods vehicles with articulated trailers.
* PSV is a special kind of training given to students who wants to carry passengers this training is given to all other class students depending on what they want carry in their vehicle once they graduate. The training is done depending on how one performs during test drive and can run for a period of two weeks if one doesn’t meet the required standard.

# CASE STUDY

The main focus is the processes which are involved from the registering of the student, how the training is done, how the students pay the tuition fees up to when the student leaves the school.

# CURRENT SYSTEM DESCRIPTION

The school has for main functions:

1. **Student Registration:** It is responsible for registering the students and keeping the student personal files. The file is called Student Personal File.
2. **Instructors:** The function is responsible for scheduling classes known as Instructors File.
3. **Accounts:** This function is responsible for the collection and monitoring of tuition fees payments, it is known as Fees File
4. **Vehicle Fleet Control:** This function is responsible for managing to fleet of vehicles at the school, it is called vehicle file.

All these modules are done manually.

Once a student is registered and the initial payment is made, the student goes for the Highway Code training session. This class involves all kind of students who are divided into twenty students in each class session. In this session the instructor trains the students for two days on how to observe road signs and signals.

After this training the students are now allocated to their classes their prominent classes.

Each class has a maximum of 20 students. All these classes run for 30 days. After the training, students are scheduled for testing. The testing is rendered by the Road Traffic department. This is where the students leave the school and graduate. The student can either leave for good or stay at the school for the following reasons:

* If one graduates from a lower class can either leave or join the other top class at the school
* If a student fails testing at Road Traffic Department, which is unusual at this school, the student is given more training for free to polish up where he / she is wanting and is rescheduled for more testing after the next 30 training days.

Once a student has passed the road traffic Department testing, they are given the drivers licence which they have passed. Back at school students are awarded with certificates of honour which they use as a reference to prospective employers for them to know where they we trained.

##### *Fig Two: Context Diagram*

Student Registration System

Request for Registration

Student Registered

Request for Payments

Cash Received

Schedule Provided

Request for a vehicle

Vehicle Given

Request class schedule

# PROBLEM STATEMENT OF THE CURRENT SYSTEMS

There are a number of problems which are being faced in the current system as the facility uses a manual system.

Below is a list of some of the problems being faced at the facility;

* There is no proper fees payment tracking mechanism, where by at times student are able to do and finish the training without making payments
* Since there are more students who come and attend to classes at this school it is becoming more time consuming to register and allocate a student to a right class and dormitory.
* It is usually slow in managing the system as a result students are delayed to register and start their classes.
* The system is labor and space intensive since most of its services uses a lot of paperwork
* Files are usually missing in the process especially when departmental reconciliations are done.
* There is lack of confidentiality in the current system because anyone can access the files of any student who have settled or not settled their fees balances anytime unlike in the automated system every user will have to be authenticated before handling a transaction
* No backup exists to support disaster recovery
* Once the file has been taken from the file location it is now unavailable to others until it is put back.
* Data redundancies as copies of transaction detail are sent from the registry department, then to the cashier as the transaction transactions are conducted.
* Difficult to manage information and data as there is a lot of manual work.
* High cost of consumables like papers as the cost keeps on changing to high levels of costing always.

# PROPOSED SYSTEM

## Aims

The project is aiming at bringing right solutions to the mentioned above problems in the system.

## Objectives

Objectively at the end of the project the system is expected to achieve the following.

* To produce alert about the student who have not yet paid their remaining balances as schedule.
* To provide a secure system application in terms of information retrieval.
* To facilitate proper system that will provide a proper access mechanism to the users.
* To provide a systematic recording keeping system.
* To facilitate a self-balanced mechanism which will control the number of students registration against the fees paid.
* To facilitate the calculations of profits against services provided and cash received.
* To facilitate the backup of the system and data.
* To provide a cost effective system that will reduce the cost of consumables.

## Components in the Proposed System

The system will use Microsoft Access Database and Microsoft Visual Basic .NET will be used to create the Graphical User Interface and all the coding for the system. Crystal reports will be used to generate reports and photo shop for developing good an clear pictures to the system. It will comprise of modules like User Identification Module, Registration Module, Accounts Module, Instructors and Class Schedule Module, Vehicle allocation Module and Reports Module.

### Functional Description

These will be divided according to functionality, users and operating platform

1. **System Functionality**
2. Registration Module, this module will be responsible for keeping student personal details like; Student Name, set, address, email address, phone numbers, course registered and many more necessary entries.
3. Accounts Module. This will keep and monitor the tuition fees paid by student, the fees balances and the total schedule of fees to be collected by a given date.
4. User identification module. All the users to this module will first have to be identified before carrying out transaction.
5. Report Module. The module will display all necessary reports like summaries of fees balances, days remaining for training for student as per selection.
6. **System Users**
7. Instructor will check the schedule for classes for the day.
8. Cashier, will be responsible for fees collection and asking for balances
9. The director/administrator will use it for searching, adding, deleting, and updating instructors and students who have left the school and also scheduling of classes
10. Registry Clerk will use the system for registering students.
11. **Operating Platform**

The system will operate in all environments which have dot.net framework. For Masache Boarding Driving, the following will be needed.

### Software

1. Windows Server 2008 which will be used for hosting the system and proving a network environment.
2. Windows 7 Profession will be used in all terminals which will be put in all the offices

### Hardware

1. HP Pro 387 server, which will be in the mangers office
2. 4 Client desktops which will be used to access and transact all the required process in the store.

# DEVELOPMENT SPECIFICATION

## Development Methodology

With the system at hand, Prototyping has been chosen as the appropriate methodology for the systems development. In this methodology, we will first of all get the user requirements through critical analysis as it is required for any development methodology.

The system will then be designed according to the user requirements

A prototype of the proposed system will be developed based on the design. The prototype will then be submitted to the users for the testing to check if there are any improvements or corrections that need to be made. If there are any corrections/improvements or new requirements have emerged, they are communicated to the development team. The development team will then implement required changes and another prototype is developed which is also tested by the users. If still the user requirements have not been met, the above process is repeated (iteration).

If there are no corrections to be made to the prototype, the prototype is finalized and may be submitted to the users for use.

### Reasons for Choosing Prototyping

* Prototyping facilitates quick capturing of requirements, therefore it will not take us a lot of time to get all the user requirements
* Users will be given the opportunity to work with part of the system while it is still under development (and will be able to note errors in advance).
* With Prototyping, we are assured that the final system will meet the user’s requirements, since errors or improvements are pointed out and corrected during development through the iterative process of developing prototypes.
* The cost of using this methodology will be relatively less because errors in this methodology are detected and corrected early before the system is implemented compared to finding the errors after the final system is implemented which proves to be expensive.
* Since users will be involved a lot during the development (through the use of prototypes), they will take ownership of the system

# RESOURCES (SPECIAL REQUIREMENTS) FOR SYSTEM DEVELOPMENT

**Software**

* Microsoft Visual Basic .NET – for coding of the system K 10,000
* Crystal Reports – for generation of reports for the system K 5,000
* Visual Studio – For application development K 10,000
* Microsoft Office – for database development K 7,000
* Photo Shop – for creation of pictures to be used I the system K 8,000

**Hardware**

* Computers (with Windows XP and minimum of 256 MB RAM) K 30,000
* Transport K 2,500
* Stationary K 2,000
* Set aside(Contingence) K 10,000

**Total K 84,500**

### Project Organization

This project will have a structure in which roles and responsibilities are clearly defined. The organization positions will be as follows.

Project supervisor

Masache Boarding School Director

Steering Committee

Project Sponsor

The Project Manager

Risk Manager

Users

**Project Development Team**

The Systems Analyst

The system Designer

The programmer

The Quality Manager

### Project Roles and Responsibilities

**The Project manager**: the roles and responsibilities are as follows:

* Planning, monitoring and controlling activities within the project
* Reporting to the project sponsors on the progress of the project
* Selecting, building and motivating the project team
* Making timely decisions to ensure the projects success
* Ensuring that each member should have a clear picture/goal of what we would like to achieve at the end of the project.

**The Project Sponsor**: the roles and responsibilities are as follows:

* Defining the business aims of the project
* Defining the projects objectives and its priorities in terms of time, cost and quality/performance
* Initiating the project and appointing the project manager
* Monitoring the progress of the project from a business stand point

**The users**: the roles and responsibilities are as follows:

* Defining the detailed requirements for the system to the system developers
* Reviewing the developers specification in order to ensure that the system supports the business function
* Conduct acceptance testing of the new system

**The Risk manager**: the roles and responsibilities are as follows:

* Identifying, classifying and quantifying the risk
* Establishing risk reduction actions or measures

**The systems analyst**: the roles and responsibilities are as follows:

* Advising the project manager and project team members on analysis methods and techniques
* Ensuring that analysis standards are being followed

**The systems Designer**: the roles and responsibilities are as follows:

* Design the new system according to the structured specification and designing how the system will be developed technically.
* To produce the design document which contains the designs of forms, files, screen layout, and how the security aspect can be employed in the system.

**The Programmer**: the roles and responsibilities are as follows:

* Coding the system according to the requirements specification produced by the systems analyst.
* Producing the user manual of the system
* Provide training to the users of the system, Conducting system testing

**The Quality manager**: the roles and responsibilities are as follows:

* Writes the quality plan
* Develops the quality control procedures
* Checks if the quality procedures are adhered to
* Provide guidance to team members

# Project Plan

The following topics will be outlined in the project plan giving details in each one of them, these are: Estimation, Duration, Scheduling and resourcing, project objectives, project duration, monitoring and control procedures, Deliverables, Test plan and a contingency plan.

**Estimation:**

The top down approach will be used to estimate cost of the project; this technique involves breaking down the project into parts or stages to produce the final estimates.

**Scheduling and Resourcing:**

Scheduling will involve the sequence in which the work is going to be carried out including the dates at which we plan activities to start finish on the other hand resourcing will involve defining what type of resources will be required and defining when each resource will start and finish on the project

**Project duration:**

This project will take approximately 6 Months.

**Monitoring and control procedures:**

Weekly progress meetings will be conducted, this will be used to exercise control over work

**Stage Deliverables:**

Each stage will produce deliverables inform of a report which will be used for monitoring and controlling purposes.

**Test plan:**

A test plan will be developed to show how the system will be tested

**Contingency plan:**

A contingency plan will be developed to deal with any risk which the project would come across.

### Project Control

* Project reviews and assessment will be conducted for purposes of monitoring and controlling how the project is progressing and quality inspection will be carried out throughout the project
* Checkpoints will be established to check, with the team, on all aspects of the project against the project plan.
* Each stage in development will have a report which will be produced to check that the project is meeting all the specifies requirements
* Usage of resources will be monitored closely to ensure that resources are effectively used so to avoid unnecessary extra costs

### Change Control

During the life cycle of every system, change is more or less inevitable. Project change can arise due to many things.

* Change in the business environment in which the customer operates and to which the School must respond e.g. a competitor introducing new services.
* The availability of new technologies which offer different possible system solutions
* Change requested by the users of the system.
* Business survival

Below are Phases of change that have to be followed when implementing change in a system:

**Launching:** At this stage denial is inevitable as people feel challenged and apprehensive about the new system, but they feel confident that they can apply current skills to the new situation.

**Communication:** At this stage focus should be mainly on key issue which can influence the parties involved, benefits of the new system should be communicated.

**Education:** At this stage users of the system need to be trained on how to use the new system.

**Exploitation:** At this stage confidence builds amongst users of the new system, users become more responsive, decisive and assertive.

### Configuration Management

Configuration management ensures that, if changes are implemented then amendments to each and every deliverable affected are properly controlled and recorded.

### System Development Stages

Below are the stages involved in system development life cycle.

1. Feasibility Study
2. Requirement Analysis
3. System Specification
4. System design
5. Code and Test
6. Implementation
7. Test and Maintenance

### Project Management Risks

During the development of this project it will be inevitable that some risks will be encountered certainly. These risks have been identified; estimated and counter measures have been put in place to reduce or prevent the risk.

#### Risk Identification

1. Lack of users experience due to the advancement of the new system
2. Lack of funds to continue with the project
3. The users resisting to change the way they operate with the old system to the new system
4. Funds not provided on time

##### Risk Estimation

|  |  |  |
| --- | --- | --- |
| **Risk** | **Probability** | **Impact** |
| Lack of users experience due to the advancement of the new system | L | M |
| Lack of funds to continue the project | L | M |
| The users resisting to change the way they operate with the old system to the new system | M | H |
| Funds not provided on time | L | H |

**Key:** H stands for High risk, M stands for Medium risk, and L stands for low risk

##### Risk Evaluation or Risk Countermeasures

Below are some of the counter measures against the risks which have been identified:

1. Mechanisms will be put in place to make sure that the funds are available on time by reminding project sponsor on the delays which will be caused by this risk
2. Mechanisms will be put in place to ensure every member in the team has a role to play and should be committed to it else extreme caution will be applied followed by dismissal
3. Mechanisms will be put in place to make sure that the users of the system undergo some training before using the system
4. Mechanisms will be put in place to make sure that all users of the system have been educated about the benefits of the new system

### 

### Project Estimation

#### Estimation Method to be used for this project

The top down approach will be used to estimate this project. In this estimation technique the break products are broken down into stages. Each stage has its associated time and resource which will be used. Below is a diagrammatical representation;

1 month

1 month

1 month

1 month

1 month

1 month

**The Entire Project**

Feasibility Study

Analysis

Design

Code and Test

Implementation

Test and Maintenance

**Total Project Duration: 6 Months**

The resources needed for the project are as follows:

|  |  |
| --- | --- |
| **Project Stages** | **Resources Required** |
| Feasibility Study | The Sponsor to provide funds, an analyst to interview users of the current system and stationery for recording data. |
| Analysis | Project Supervisor ,An analysts, project manager, feasibility report, users of current system, stationery 15 days for interviewing users, 15 days for producing structured specification, Money for transport. |
| Design | Project Supervisor , a designer, project manager, users of current system, an analyst, resource provider, 2 days for producing design document, |
| Code & Test | a programmers, Visual Basic.Net 2005 (Programming Language), Disks, testing team, users, Good Programming Environment, 1 month for coding and testing the system, resource provider, Project Supervisor, a Computers, Printer, |
| Implementation | Project Supervisor ,3 project development members for system installation, 1 trainee for training the system users, 4 days for installation and training, system users, client, project manager, |
| Test & Maintenance | Users, testing team, Project Supervisor, project manager, fund provider |

**Cost Estimates**

For this project to be undertaken, i have estimated the costs of the resources that will be used form this project and are as follows:

|  |  |
| --- | --- |
| **Items/Resources** | **Cost** |
| Software (VB.Net2005) | MK 5, 000.00 |
| Microsoft office 2007 | MK 5, 000.00 |
| Photo shop | MK 8,000.00 |
| Computer | MK 150, 000.00 |
| Internet | MK 2, 500.00 |
| Printing | MK 2, 500.00 |
| Transport Money | MK15, 000.00 |
| Stationery | MK 8, 00.00 |
| Total Cost | MK 180, 800.00 |

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## Testing

The following test will be involved during this stage.

**Unit testing**: This will involve testing modules as they are being developed to ensure that they meet their specification.  
  
**Integration Testing:** This involves testing modules as they are being joined together; this is done to check if the modules will be compatible with each other

**System Testing**: This involves testing the whole system against functional and nonfunctional requirements.   
Below are some other tests which will be conducted

* Security testing
* Performance testing
* Documentation testing
* Stress testing
* Volume testing
* Usability testing
* Functional testing

**Acceptance Testing:** The users of the system will test the system in order to check if the system conforms to their expectations.

# 

# APPENDIX A References

NCC Education Limited; *Business Systems Analysis and Software Development*

NCC Managing Business Projects *by NCC Education Ltd ISDN*NCC Business Systems Design *by NCC Education Ltd ISBN 1-90234-349-2*

# APPENDIX B Acronyms

**IADCS** International Advanced Diploma in Computer Studies

**NACIT** National College of Information Technology