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| School Management System |
| Synopsis |
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Table of Contents

[1. Introduction 2](#_Toc320368080)

[1.1 Background 2](#_Toc320368081)

[1.2 Objective 2](#_Toc320368082)

[1.3 Purpose and Scope 3](#_Toc320368083)

[1.3.1 Purpose 3](#_Toc320368084)

[1.3.2 Scope 4](#_Toc320368085)

[2. SURVEY OF TECHNOLOGY 4](#_Toc320368086)

[Programming FRAMEWORK (.NET 4) 5](#_Toc320368087)

[Programming Language (C#) 5](#_Toc320368088)

[Database - MySQL 5](#_Toc320368089)

[3. REQUIREMENTS AND ANALYSIS 6](#_Toc320368090)

[3.1 Problem Definition 6](#_Toc320368091)

[3.1.1 Existing System 6](#_Toc320368092)

[3.1.2 Documents maintained 7](#_Toc320368093)

[3.1.3 Work To Be Done 8](#_Toc320368094)

[3.2 Requirements Specification 8](#_Toc320368095)

[3.2.1 Functional Requirements 8](#_Toc320368096)

[3.2.2 Non-Functional Requirements 11](#_Toc320368097)

[3.3 Planning and Scheduling 11](#_Toc320368098)

[Gantt chart 11](#_Toc320368099)

[Tracking Gantt 12](#_Toc320368100)

[Pert chart (Network Diagram) 12](#_Toc320368101)

[3.4 Hardware and Software Requirements 13](#_Toc320368102)

[3.4.1 Hardware Requirements 13](#_Toc320368103)

[3.4.2 Software Requirements 13](#_Toc320368104)

[3.5 PRELIMINARY PRODUCT DESCRIPTION 14](#_Toc320368105)

[3.6 CONCEPTUAL MODELS 15](#_Toc320368106)

[3.6.1 E-R Diagram 15](#_Toc320368107)

[3.6.2 Context Diagram 18](#_Toc320368108)

[3.6.3 Data Flow Diagram 18](#_Toc320368109)

[4. REFERENCES 19](#_Toc320368110)

# Introduction

## Background

Electricity is the ultimate need for almost every citizen of our country. With the advent of new technology we are more dependent on electricity now. Currently the electric supply offices use paper books and ledgers to track & manage customer applications, complaints. As a result, it takes longer time and extra effort to serve customers with existing inefficient system. School Management System (will be referred as **ESCMS** in this document) is acomputerized solution for managing customer needs in Electric Supply offices. School Management System will enable electric supply offices to maintain computerized records and manage customer needs more efficiently with help of sophisticated customer management techniques and technologies.

## Objective

1. School Management System is versatile and complete end-to-end school management software with precision engineered to enhance the administrative efficiency of educational institutions. Ready for today and tomorrow, web enabled at its core, it provides seamless connectivity with hand held devices for routine tasks. It is an interactive platform for all entities viz. Students, Teachers, Management, Parents. It is a simple yet powerful one point integrated platform that connects all the departments of an institution namely office, fee counter, library, hostel, stores, academics, activity center and so on.

## Purpose and Scope

### Purpose

The main purpose of School Management System is to help schools manage various operations including student data, administrative, and fundraising operations. It is different from Course or Learning Management Systems as schools have different needs towards learning process in social manner as well as the educational structure has some nuances compared to general school education. School management systems make the information flow quicker and more accessible. They provide teachers with useful tools to decrease the daily routine of simple tasks which could be automated. Another school specific is the need to involve children parents more in the process of their child’s education. Some school management systems are web-based to provide access from any computer with an internet connection with no additional software installation. The management of the software is more centralized and easier to keep updated. By implementing software to manage daily school needs teachers and administrators can save time and have a good overview of resources. School systems are needed for all parties involved in education – parents, children, teachers and schools. Parent interest usually is to have a better and quicker way to communicate with teachers of their children or the school administration. They get more involved as they can get up-to-date information about the school events, grades, children school attendance, homework etc. Teachers get automated reports and average grades in the end of a semester. Children have a list of the home tasks, digital learning materials. It saves a lot of time for the people involved in analyzing of the school performance as all statistics are presented automatically.

### Scope

Currently this software is aimed for a single electric supply office customer management. It can be extended to support networked multiple electric supply office and have a centralized database and to serve wider range of customers of Electric Supply around the country.

We have developed this for Desktop Computers running on Windows Operating System. It can be enhanced to support UNIX / Linux, MAC OSX Operating systems.

Our software will not be integrated with Electric Billing System right now. But in future we can easily extend to support that.

# SURVEY OF TECHNOLOGY

This software will follow Object Oriented Programming Paradigm and use below mentionedareas.

**Front End/ GUI Tools**: Visual Studio 2010, .NET 4.0, C#

**Backend:** MySQL

**Networking Technologies:** TCP/IP

**Operating Systems:** Windows XP, Windows 7

**Application Type:** ERP application, Database Management System.

## Programming FRAMEWORK (.NET 4)

The .NET 4 Framework is Microsoft's platform for building applications that have visually stunning user experiences, seamless and secure communication, and the ability to model a range of business processes. The .Net Framework consists of:

**Common Language Runtime** – provides an abstraction layer over the operating system

**Base Class Libraries** – pre-built code for common low-level programming tasks

**Development frameworks & technologies** – reusable, customizable solutions for larger programming tasks.

The framework's Base Class provides user interface, data access, database connectivity, cryptography, web application development, numeric algorithms, and network communications. The class library is used by programmers, who combine it with their own code to produce applications.

## Programming Language (C#)

C# is a type-safe, object-oriented language that is simple yet powerful, allowing programmers to build a breadth of applications.

C# is a multi-paradigm programming language encompassing imperative, declarative, functional, generic, object-oriented (class-based), and component-oriented programming disciplines.

It was developed by Microsoft within the .NET initiative and later approved as a standard by Ecma (ECMA-334) and ISO (ISO/IEC 23270). C# is one of the programming languages designed for the Common Language Infrastructure.

C# is intended to be a simple, modern, general-purpose, object-oriented programming language.

## Database - MySQL

MySQL is the world's most popular open source database software, with over 100 million copies of its software downloaded or distributed throughout its history.

The MySQL Community Edition includes:

* Pluggable Storage Engine Architecture
* **Multiple Storage Engines**: InnoDB , MyISAM, NDB (MySQL Cluster),Memory ,Merge , Archive, CSV
* MySQL Replication to improve application performance and scalability
* MySQL Partitioning to improve performance and management of large database applications
* Stored Procedures to improve developer productivity

School Management System

# REQUIREMENTS AND ANALYSIS

## Problem Definition

### Existing System

The existing system is traditional paper books and ledger system where several registers are maintained to store user request and to track other details about the request. The flow diagram of how a customer request executed now is shown below:



### Documents maintained

**Application Register:** Application Number, Name, Address with Contact Number, Load, Initial

Deposit Amount, Application Received Date, Quotation Amount, Quotation Sent Date, Amount

Received On, Service Connection Number.



* **Service Connection Register:** Service Connection Number, Application Number, Name,Address with Contact Number, Quotation Amount, Amount Received Date, Work Assigned To (Contractor), Work Completed on Date.
* **Meter Movement Register:** Service Connection Number, Name Address with Contact Number,Meter Number, Seal Number, Meter Issue Date, Work Assigned To (Staff), Date of Connection
* **Estimation Sheet per Application:** contains input Application Number, name, Address with Contact Number, Wire Length Required, Angle Type and calculates Weight of Angle, andQuotation amount

### Work To Be Done

We will incorporate the above mentioned workflow of anSchool Management System in an automatic computerized way.

## Requirements Specification

### Functional Requirements

#### Apply for new connection

**Introduction**

Customer can apply for a new connection.

**Inputs**

Relevant customer data like name, address, contact number, type, payment.

**Processing**

Employee will enter the data in the ESCMS and create a new connection entry.

**Outputs**

ESCMS will generate an application number for future reference and will provide customer a acknowledgement receipt.

#### check connection request status

**Introduction**

Customer can check the new connection status.

**Inputs**

Application number & customer name.

**Processing**

Employee will enter application number & customer name in the ESCMS and it will search the status & display in the screen.

**Outputs**

Customer will get the status information from employee and he may request for a printed status also.

#### Create a vendor task

**Introduction**

Employee will create a task for vendor.

**Inputs**

Application number, customer details, task details.

**Processing**

Employee will enter details in the ESCMS and it will pick a vendor & assign the task.

**Outputs**

Vendor will get a notification about the task and a printed work order.

#### vendor task status update

**Introduction**

Vendor will update the task status to employee and receive partial payment.

**Inputs**

Application number,task details, proof of task status.

**Processing**

Employee will enter details in the ESCMS and update the system. System will approve the payment order.

**Outputs**

Vendor will get a notification about the task update and a printed payment order.

#### Generate report

**Introduction**

Employee will choose the kind report to be printed and system will create the details of the report and print it.

**Inputs**

Report Type, area, time frame.

**Processing**

Employee will enter details in the ESCMS and the system will collate data. System will print the report.

**Outputs**

A printed report will generated.

### Non-Functional Requirements

* **Efficiency**:

It will be efficient as it reduces manual labor and searching.

* **Backup**:

The employees will take regular print out of daily reports and take back up. Digital back up can be taken in a regular interval.

* **Documentation**:

ESCMS will have user manual and help documents.

* **Maintainability**:

It is designed such a way that it can be maintained with minimal effort.

* **Performance**:

The response time of ESCMS will be very fast. So it will be efficient enough to cater the customer.

* **Privacy**:

The data will be encrypted and the user data will not be shared with third party.

* **Security**:

ESCMS will use secure connection and enhanced security measures to protect data.

* **Usability**:

It will be very user friendly and usable by any person with minimal computer knowledge.

## Planning and Scheduling

### Gantt chart



### Tracking Gantt



### Pert chart (Network Diagram)



## Hardware and Software Requirements

### Hardware Requirements

* Computer that has a 1.6GHz or faster processor
* 1 GB (32 Bit) or 2 GB (64 Bit) RAM
* 10 MB of available hard disk space
* DVD-ROM Drive / USB Port

### Software Requirements

* Windows XP (x86) with Service Pack 3 / Windows Vista (x86 & x64) with
* Service Pack 2 / Windows 7 (x86 & x64)
* Microsoft .NET 4.0

## PRELIMINARY PRODUCT DESCRIPTION

School Management System will upgrade the existing system, so it needs to havegood support for existing system as well. It will collect the data from customers & employees andpopulate records which will match existing paper book registers. So that employees can take printout and maintain similar records. School Management System consists of threemain modules:

* ESCMS GUI
* ESCMS Engine
* ESCMS Database



## CONCEPTUAL MODELS

### E-R Diagram

We will design a RDBMS for File Management System. The entities and their attributes are listed below. Attributes in Bold letter is the unique key.



**Relationship between Entities:**

Electric Supply office has Customers1 : N

Electric Supply office has Contractors1 : N

Electric Supply office has Employees1 : N

Customer does Requests 1 : N

Electric Supply serves Requests 1 : N

User uses Service Connection 1 : N

Employees provides Estimates M : N





### Context Diagram



### Data Flow Diagram



# REFERENCES

* <http://en.wikipedia.org>
* <http://msdn.microsoft.com/en-us/>
* <http://www.microsoft.com/en-us/default.aspx>
* <http://www.codeplex.com/>
* <http://stackoverflow.com/>
* <http://www.codeguru.com/>
* [http://www.w3schools.com](http://www.w3schools.com/)
* [www.mysql.org](http://www.mysql.org)
* Electric Supply Professionals
* **Programming C#** - E. R. Balaguruswamy