SOFTWARE RQUIREMENT SPECIFICATION

TOPIC : GSM ELECTRICITY

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1. EXECUTIVE SUMMARY

This is an excellent application for both home and offices. This is a GSM enabled energy meter, each meter has a SIM with GSM which can be used for unique consumer number. The energy meter will read energy consumption daily. And on the time period it will generate the bill and will send to the user and keep a copy to the admin.

In our normal energy meter we are not able to check our daily power consumption and if we need to change verify the over usage we will have to wait till next bill. It is also difficult to check over usage on the spot. If can found the over usage on time simply we can solve the over-billing. Here we introduce our GSM enabled meter which will always monitor the usage. Also there is a inbuilt mechanism to save daily average. Always the meter will compare daily average to determine over usage. If over usage found the system will provide notification to the consumer. So that the consumer can easily understand where the energy losses. The Proposed System is windows form and only valid user will be allowed to retrieve the details of the project. This system is not a time consuming one and it can be accessed easily. Chance for error is very little. The replacements of existing system will tremendously important overall performance of the system. This system is designed in such a flexible manner that further changes can easily be implemented. This system was developed with a view to ensure timely and easy access of data, offer better services to the citizen and to speed up the processes.

Advantage:

➢ More Efficient:

Since the new K S E B daily bill system is computerised based it is more efficient than the manual process. It gives quicker and better results than the manual system. The overall performance of the new system is much more than the existing system.

➢ Storing data is easy:

Here data storage is much easier as the data is stored in the database. Data entry and data retrieval is easier as the data is stored in tables inside the database.

➢ Easy and quick data access:

Data accessing is possible at any time. Any staff in the offices that has a user-id and password in this software. It can check any details of the customer, also the customer allowed to the user any time when the office is working.

➢ More secure:

The security for data is more than existing system. Data loss is minimised to the maximum extend.

➢ Avoid data redundancy

It can avoid repetition of data. This system only allows unique consumer number.

2. PROJECT OVERVIEW

2.1 Objective of the Project

The main objective of the project is to enable users to track their electricity usage and easy billing. The users can view their daily as well as monthly billing through the site and make payments. The users can also express their feedbacks and complaints through the site. The project helps in reducing the labour of electricity board employees, who must check the meter readings manually.

2.2 Stakeholders

Stakeholder for site are the users or consumers who use the site to track their energy usage and billing details and the admin who adds new users, services and controls billing.

2.3 Scope of the Project

Scope of the project is to develop a user-friendly website connected to a GSM meter. The meter had a SIM attached which will automatically send all usage details to the database from where the details are available to the users through the site. The proposed system increases the efficiency and helps to use full potential of the website and GSM meter.

2.4 Feasibility Analysis

2.4.1 Technical Feasibility

The GSM meters are specially designed devices, which are similar to the normal electricity reading meter. The GSM meters are readily available and they are to be connected to the database. The firm provides enough resources to successfully complete the project within the given amount of time.

2.4.2 Operational Feasibility

The proposed system helps in reducing the manual labour of electricity board employees, also helps users to access the required details any time anywhere. The successful completion of the project will ensure the above features thus making it more efficient than the existing system.

2.4.3 Schedule Feasible

The GSM meter is pre-designed hence the main tasks of the project is to focus on the website and connecting the meter to the database. Hence more time must be invested in testing the system. The system study is made easy with the help of the existing system, as the key features of the system are similar.

3. OVERALL PROJECT PLANNING

3.1 Development Environment

FRONT END - Python

BACK END - MySQL

IDE - Visual Studio Code

UML TOOL - Visual Paradigm

3.2 Constraints

Time Constraint :

The definition of time constraint refers to the limitations on the start and end times of a project. Any deviation from the schedule can affect the successful completion of the project on time.

Resource Constraint :

The resource constraint definition refers to the limitations of inputs available to complete a particular job: primarily people time, equipment and supplies. The GSM meters are pre-designed hence any failure of the meter may affect the whole project.

3.3 Assumptions and Dependencies

1. The system does all the jobs the employees of the electricity board may go jobless – The system requires close monitoring and maintenance

2. The system can be easily hacked and misused by consumers – The system provides required security to all data.

3.4 Process Model

The waterfall model is the classical model of software engineering. As this model emphasizes planning in early stages, it ensures design flaws before they develop. It is better to consider applying the full waterfall development cycle model when correcting problems or implementing these enhancement requests. For this reason we can use waterfall model as the software development model for our project.

4. ITERATION PLANNING

4.1 Schedule

	START DATE	DURATION	END DATE
LOGIC DESIGN	JUNE 24	5	JUNE 29
SYSTEM SELECTION	JULY 1	4	JULY 4
SYSTEM STUDY	JULY 13	5	JULY 18
INITIAL REPORT	JULY 30	3	AUGUST 1
FORM DESIGN	AUGUAT 7	14	AUGUST 20
TABLE DESIGN	AUGUST 21	5	AUGUST 26
CODING	AUGUST 27	30	SEPTEMBER 26
TESTING	SEPTEMBER 27	25	OCTOBER 21
IMPLEMENTATION	OCTOBER 26	4	OCTOBER 30

4.2 Risks

Main Risks involved is project duration which should be managed by effective scheduling. Another main factor the can affect the successful completion of the project is the proper working of the GSM meter. This can be avoided through effective testing.

5. HIGH LEVEL SYSTEM ANALYSIS

5.1 User Characteristics

Admins control overall performance and working of the site. Admin add new users, services and changed readings etc. Customers or users use this site to view their billing and consumption details, as well as give their feedback and complaints.

5.2 Functional Requirements

5.2.1 Functional Requirement 1 : Consumer Registration

Introduction : Admin can add new consumers to the system.

Input : Consumer details

Process : Generate consumer number

Output : Details stored to database

5.2.2 Functional Requirement 2 :Usage Calculation

Introduction : The GSM meter stores the meter readings to the database and the system calculates the usage.

Input : Meter readings

Process : Calculate usage

Output : Usage value stored to database

5.2.3 Functional Requirement 3 : Bill Generation

Introduction : The system calculates the consumption rate and generate bill accordingly

Input : Reading value from database

Process : Calculate bill according to amount per unit

Output : Generated bill

5.2.4 Functional Requirement 4 : Feedback and Complaints

Introduction : The users can express their feedback and complaints through the system

Input : User feedback and complaints

Process : Store to database

Output : Admin replay to the feedback and complaints

5.3 Non-Functional Requirement

1. The access permissions for system data may only be changed by the system's data administrator

2. The system must be available to all the users at all the time without delay

3. The users must not be able to alter meter readings or bill amounts

4. All transactions shall pass three-way hash routine validation before committing transaction update

5.4 Use Cases

1. Add Bill – Admin can add new bills

2. Accept Users – Admin can accept new users

3.Add Reading – Admin can add any new changes in readings

4. Add Services – Admin can add and any services(Repair)

5. Complaint Replay – Admin replay to user complaints

6. View Feedback – Admin and users can view feedbacks

7. Login – Users can login to their accounts

8. Register – New users can register to the system

9. Daily bill – Users can check daily bills

10. Monthly bill - Users can check monthly bills

11. Payment – Users can pay the bill

12.Complaint – Users can express their complaints

5.4 Use Case Diagram