Research Paper   ,

POWER DISTRIBUTION LOG FEEDER

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ABSTRACT   : Now-a-days, the field of Science and technology came up with incredible enhancements leading the human life to the advanced levels. The World now is in the position of doing wonders in the field of technologies. So, it is an innovation, which makes thewayofrecording of feeders information in a substation in a simple manner.Thisprojecthasbeenimplementedusing HTML, JAVASCRIPT, CSS,MySQLand PHP. The overall consumption of power across the feeder areas under particular substation. Apart from this, the project includes with attendance of men in the substation and profiles**.** The maintenance logbooks, load data and metering records in a substation are used in this project as a continuous effort to improve the use of digital format.

Keywords: Feeders, Html,CSS,PHP, Logging, Delay,MySQL.

1. INTRODUCTION

Power distribution typically refers to the process of delivering electrical power from a source, such as a power plant, to various destinations, like homes, businesses, and industrial facilities. It involves the transmission and distribution of electricity through a network of power lines, substations, and transformers. A feeder is a circuit or a set of conductors used to supply electrical power to a specific area or group of customers. It's a part of the power distribution system.

Feeders are typically connected to a substation and serve as the primary link between the substation and distribution transformers. These are used to distribute power to individual homes and businesses. The "meter change register" refers to a record or log used to keep track of changes or replacements of electrical meters. It includes information such as the date of the change, the reason for the change, the identification numbers of the old and new meters, and the names of personnel involved in the change. When meters are changed or replaced in a substation, it's important to maintain accurate records for several reasons like billing, revenue, maintenance, security and historical date.

The maintenance logbooks contain day-by-day entries related to operational activities, equipment check, observations and any incidents or abnormalities in the substation. It is a new concept of recording feeders and circuits using web technologies like HTML, CSS, JavaScript, MySQL and WampServer. It has made to keep the records about the feeders and amount of power supply over areas under substation.Thissystem helps in maintaining the records such as attendance record, metering and log maintenance record.

2.LITERATURE SURVEY

1. "Optimization of Power Distribution Log Feeder Routing Using Genetic Algorithm" (Wang et al., 2019) - Wang et al. proposed a genetic algorithm-based approach to optimize the routing of power distribution log feeders. They used genetic operators to improve the efficiency of feeder routing and reduce energy losses. The study demonstrated the effectiveness of their approach in optimizing feeder routing, leading to reduced energy losses and improved system performance.

2. "Enhancing Electrical Billing Management Using Data Mining Techniques" (Gupta et al., 2018) - Gupta et al. proposed the use of data mining techniques to enhance electrical billing management. They analyzed customer consumption patterns and billing data to improve billing accuracy and efficiency.

3. "Integration of IoT in Substation Automation for Improved Monitoring and Control" (Choudhary et al., 2017) - Choudhary et al. discussed the integration of Internet of Things (IoT) technologies in substation automation. They highlighted the benefits of real-time data collection and analysis for improved monitoring and control of substations.

4. "Challenges and Solutions in Implementing Time-of-Use Billing for Electrical Consumers" (Kumar et al., 2016) - Kumar et al. identified challenges in implementing time-of-use (TOU) billing for electrical consumers. They proposed solutions to address these challenges and improve the effectiveness of TOU billing systems.

5. "Optimization of Substation Automation Using Advanced Control Strategies" (Lee et al., 2019) - Lee et al. presented advanced control strategies for optimizing substation automation. They discussed the use of advanced algorithms and techniques to improve the efficiency and reliability of substation operations.

6. "Impact of Renewable Energy Integration on Electrical Billing and Substation Automation" (Singh et al., 2020) - Singh et al. studied the impact of integrating renewable energy sources on electrical billing and substation automation. They analyzed the challenges and opportunities associated with renewable energy integration in the context of billing and automation.

3.EXISTING SYSTEM

Power distribution departments rely on manual record-keeping practices using physical books to manage employee data, track power transactions (supplied/received), and record other departmental activities. This manual paper-based system is inefficient and prone to errors, leading to:

- Data inconsistency and inaccuracies: Handwritten entries are susceptible to human error and inconsistencies.
- Difficulty in data retrieval and analysis: Retrieving specific information or conducting historical analysis of trends becomes time-consuming and laborious.
- Limited accessibility and sharing: Information stored in physical books is not readily accessible to authorized personnel remotely, hindering collaboration.

- Increased paperwork and potential data loss: The paper-based system requires significant storage space and increases the risk of losing valuable information due to damage or misplacement.

In general, among some records in a substation which are manually maintained, maintenance log book and metering records are lacking in developing in the field. Hence they are taken into account in this project with an idea of conversion of digital format. The existing system comprises of the following records which are as follows:

- Serial number followed by signs indication of +, - of amps in terms of 33kv.
- CB load across areas under substation.
- Transformers associated to areas with total amount of power distributed.
- Feeder name, delay with timings, delay reasons, energy meter readings, total units of power.
- Weather telephone situation with linemen as helper in 3 shifts.

Figure 1: Feeder readings recording in the feeder circuits by a lineman in a substation

Figure 2: Existing System

4.PROBLEM STATEMENT

The current manual record-keeping system used by power distribution departments hinders efficiency, data accuracy, and informed decision-making. This limitation impacts various aspects, including resource allocation, accurate billing, and timely response to customer inquiries.

5.PROPOSED SYSTEM

In comparison to existing system, the proposed system will consume less time and is more efficient. Digitalization of POWER DISTRIBUTION LOG FEEDER saves time for easy accessibility and easy maintenance. Apart from digitalizing the content in analog format we are also going to create profiles for the employees, task tracking page.

- Centralize and digitize employee data, transaction details, and other departmental activities.
- Automate data entry and validation processes to minimize errors and ensure data consistency.
- Facilitate efficient data retrieval and analysis through user-friendly search and reporting functionalities.
- Grant secure access to authorized personnel for remote information management and collaboration.
- Reduce reliance on physical paperwork and associated storage requirements.
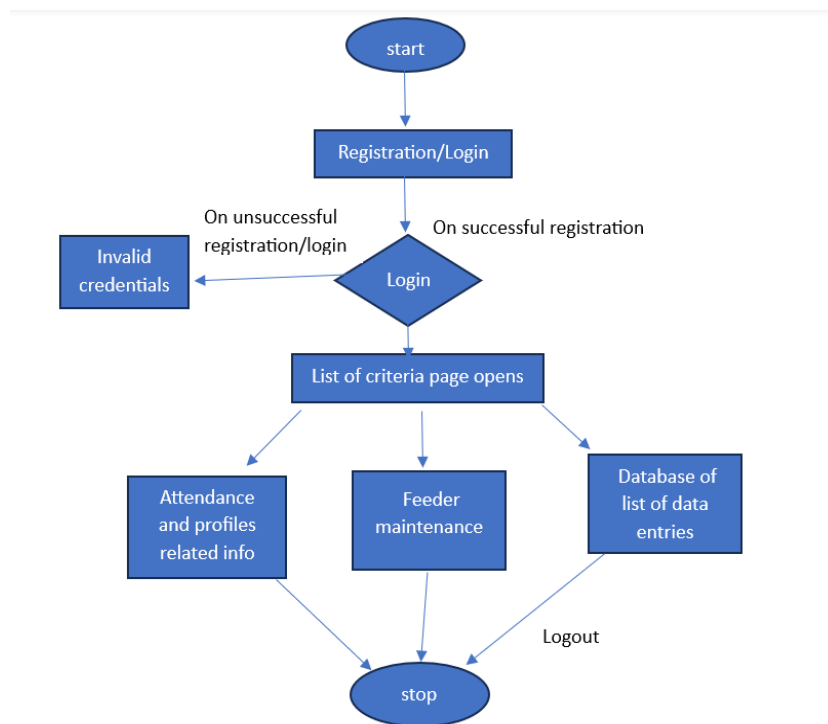
FLOWCHART

Figure3: Flow Chart

MODULEDESCRIPTION

A.   REGISTRATION

The registration page is indicated as sign up web page which consists of fields such as username, email, designation, employee id, phone number, password and role. If any field is not filled the a message at the blank displays like "please fill the field".That means user can't move to next process until the requirements in the registration form are filled. If all filled then the registration is said to be successful else unsuccessful. Soon after successful registration user/admin can go to login page.
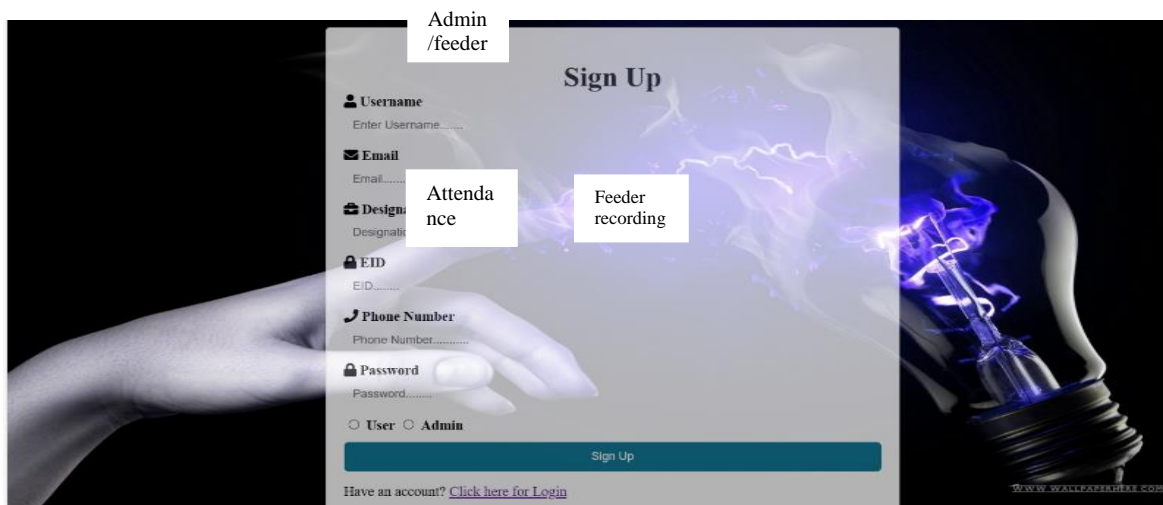
Screenshot1: RegistrationScreen

B. LOGIN

The login screen is a screen which is appeared soon after the registration process. This login page not only for admin but also for user. Here user will be the employees like lineman, assistants etc in a substation and admin is a person for example line inspector, Assistant Engineer (AE) etc who has complete control over the application. The constraints such as username as well as password are needed to be entered to go to next level of the web page. After every login popup of successfully logged displayed else invalid credentials is displayed. If at all its invalid then user need to go to registration.
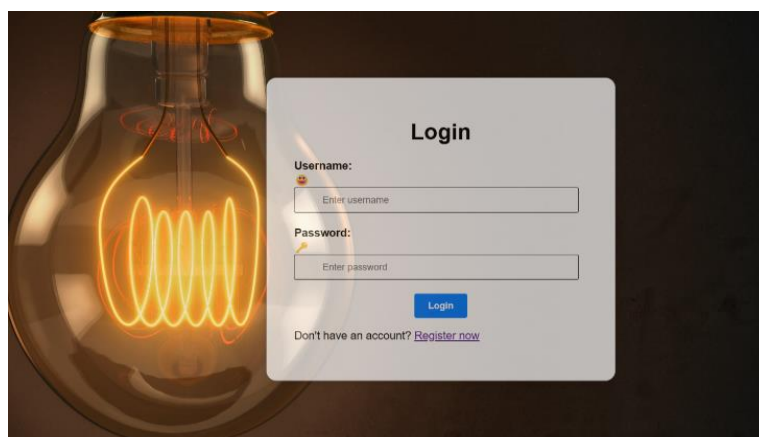
Screenshot2: LoginScreen

C. ADMINISTRATOR

After the admin logins successfully, the below page get displayed on the screen. This consists of list of criterias followed by attendance, profile view and feeder register. Each of the list has its own functionality according to implementation of project. Here, attendance is a criteria in which the employees in substation going to indicate their presence in duty and admin going to mark attendance. Next one is profile view where all the profiles of registered one displayed with update and delete options further. And the last one is most important phase where all feeders details displayed to be recorded.
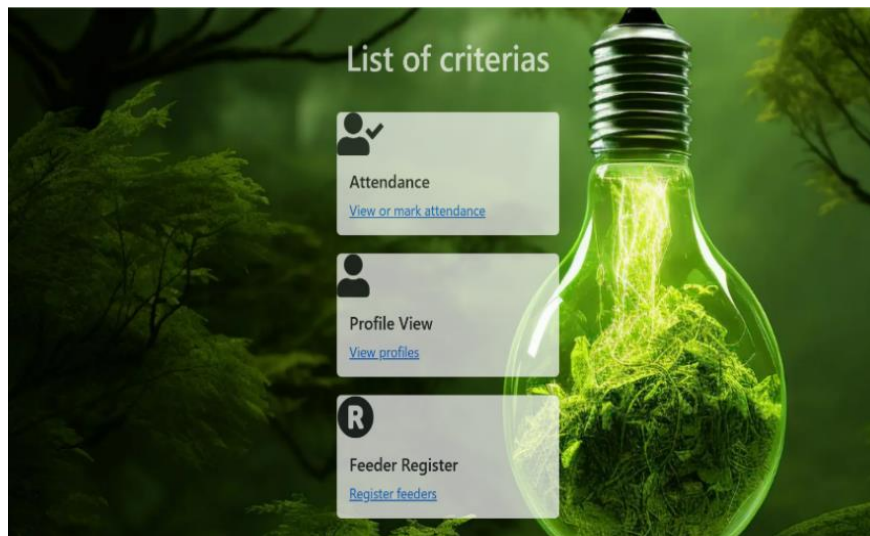
Screenshot3: Admin (Head of substation)Screen

D. FEEDER RECORDINGS

Thisscreencontainsvariousfields which is a consequent web page of the before module. It is indicated as feeder register. After clicking the link associated with this the below screen is displayed. The details filled going to be stored in the database. This can be retrieved by date and other fields according to flexibility.
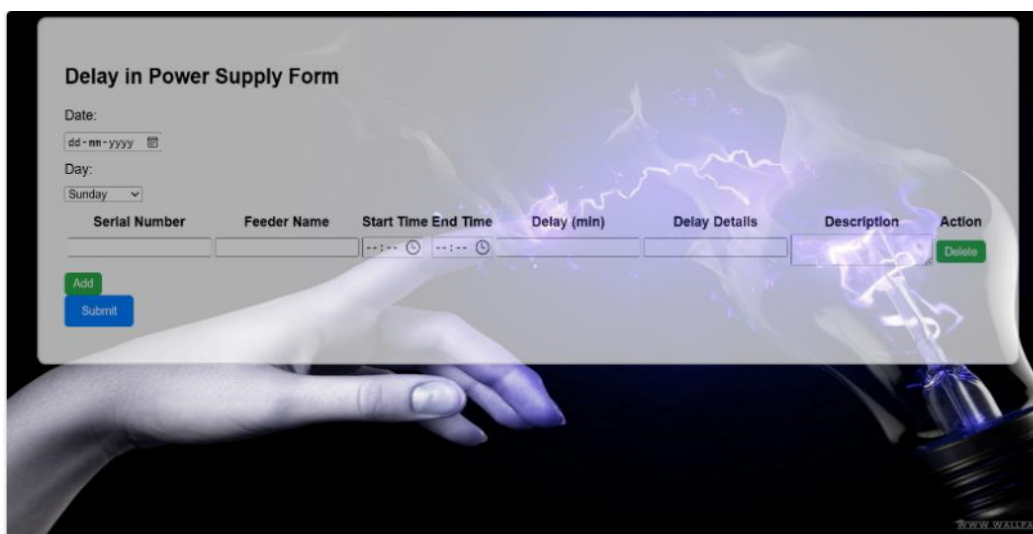
Screenshot 4: Feeder recording screen

5. CONCLUSION

Power Distribution log feeder is a concept fetched from the with the idea of making changes in lacking technology in a substation in the field of Electrical Departments. It is simple and user friendly. Not only manual work but also paper workscanbefullyeliminatedinthesubstationbranch through this project.Theaccuracy and reliability are surely increased.

In conclusion, power distribution log feeder projects using technologies such as HTML, JavaScript, CSS, MySQL, and PHP offer significant benefits in terms of efficiency, accuracy, and reliability in substation management. These projects simplify the recording of feeder information and automate processes related to consumption tracking and attendance management, leading to improved overall performance and effectiveness in power distribution management.

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My name is *Jujjhavarapu Likitha.* I am a Computer Science and Engineering pursuing student from Balaji Institute of Technology and Science, Warangal, during 2020-2024. My project was on"Power Distribution Log Feeder" which is about the enhancement of the way of maintaining records such as metering and log books in a substation according to today's technologies and innovations. I have been the leader for the entire project which enhanced not only my leadership qualities but also web development in a creative manner. I aim to utilize my coding expertise to create innovative applications that elevate my progress technologically and logically. Throughout the journey of doing the project I felt exhausted with the backend development which is very hectic to me at the beginning. But I have successfully done with the project with the support of professors and hard work. I am a person who wanted to get

a position as Web Developer in a reputed organization which enhances my skills and personal development.

I am *Idrees Mohammed* born and brought up in Warangal currently pursuing Bachelor of Technology   in the stream of Computer Science Engineering at Balaji Institute of Technology and Science, Warangal. My coursework has provided a strong foundation in programming languages like Python and Java, and I've gained experience in applying these skills through projects in software development. I'm particularly interested in the field of new emerging technologies of computer science like artificial lntelligence,Machine learning etc and my passion for this area motivated me to pursue this project power distribution log feeder and it is a web based project. Additionally, I possess strong analytical and problem-solving skills, which I believe will be instrumental in successfully completing this project.

My name is *Sharanya Shetti*, currently pursuing   B. Tech, is a dedicated Computer Science and Engineering at Balaji Institution of technology and science in Warangal, during 2020-2024. B. Tech Project was on "Power Distribution Log Feeder". With a passion for Gardening, I have dedicated myself to academic excellence and personal growth. Throughout my educational journey, I have excelled in coursework, earning recognition through awards and honors. Beyond the classroom, I actively engage in extracurricular activities, including   sports, volunteer work. Which have honed my leadership skills and fostered a spirit of collaboration. My diverse skill set includes C, Java, Python, and I am particularly drawn to Parkour. Looking ahead, I aspire to get a job in a reputed company, With a strong work ethic and a commitment to lifelong learning.
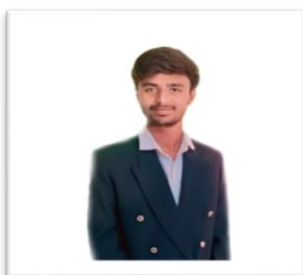
This is *K. Sai Kamal*. I am pursuing final year B.Tech. in Balaji institute of Technology and Science in the department of Computer Science and Engg., in University College of Engg., of JNTUH. I was into this esteemed university, with my hard work, intelligence and commitment, with a good Knowledge in Academics. From childhood onwards i was enthusiastic about new things and i was merit student from childhood. At the same time I learned the tech information such as resolving problems regarding computer hardware, software, Virus coding ,Hacking& many tips to improve computer or internet speed and details regarding the system. I am the person who always believing myself and confident about what I believe. My motto in my life was one of the inspiring quote by swami vivekananda. "Arise , Awake and Stop not till the goal is reached". I used to spent my free time to collect inspiring quotations and listening music which give relief to the mind.