

A Web Application for Power Generation Tracking

Noor-E-Ridhia
Student Id: 012152014

A Project
in
The Department
of
Computer Science and Engineering



Presented in Partial Fulfillment of the Requirements
For the Degree of Master of Science in Computer Science and Engineering
United International University
Dhaka, Bangladesh
August, 2019
© Noor -E- Ridhia, 2019

Approval Certificate

This project titled "**A Web Application for Power Generation Tracking**" submitted by **Noor-E- Ridhia**, Student ID: **012152014**, has been accepted as Satisfactory in fulfillment of the requirement for the degree of Master of Science in Computer Science and Engineering on 27 August, 2019.

Board of Examiners

1.

Supervisor

Prof. Dr. Mohammad Nurul Huda
Professor & Director-MSCSE Program
Department of Computer Science & Engineering (CSE)
United International University (UIU)
Dhaka-1212, Bangladesh

2.

Examiner

Mr. Suman Ahmmed
Assistant Professor
Director, Center for Development of IT Professionals (CDIP)
Department of Computer Science & Engineering (CSE)
United International University (UIU)
Dhaka-1212, Bangladesh

3.

Ex-Officio

Prof. Dr. Mohammad Nurul Huda
Professor & Director-MSCSE Program
Department of Computer Science & Engineering (CSE)
United International University (UIU)
Dhaka-1212, Bangladesh

Declaration

This is to certify that the work entitled “**A Web Application for Power Generation Tracking** ” is the outcome of the research carried out by me under the supervision of **Prof. Dr. Mohammad Nurul Huda.**

Noor -E- Ridhia
Student ID: 012152014
MSCSE Program
Department of Computer Science & Engineering (CSE)
United International University (UIU)
Dhaka-1212, Bangladesh

In my capacity as supervisor of the candidate’s project, I certify that the above statements are true to the best of my knowledge.

Prof. Dr. Mohammad Nurul Huda
Professor & Director-MSCSE Program
Department of Computer Science & Engineering (CSE)
United International University (UIU)
Dhaka-1212, Bangladesh

Abstract

To alleviate power crisis and to meet the increasing power demand of the country various power generation companies are pushing the boundaries of what's possible within power generation to help the customers achieve the right balance between power plant performance and environmental sustainability. This kind of power generation companies need website which should be attractive, modern and easy to navigate and will provide all useful information to the visitors and employees. It will also be a dynamic and well secured. Including different interfaces for the general user, admin user and registered user. They also need a per hour power generation related information for their work.

Target of this project “**A Web Application for Power Generation Tracking**” is to help any kind of Power Generation Company to maintain their office related work. As it helps to publish notice, release tender and news. The feedback, complain functionalities helps the company to know the needs of their clients. The most important thing is the generation report which helps the companies’ employees to keep update data of per hour power generation.

Acknowledgement

This project will be very memorable for me as it has helped me to gather lots of experiences and discover my potentials. These experiences and opportunities will help to shape up my professional life. As well as foster my personal growth and development.

In this report, I would like to highlight the enormous opportunities I get from my previous workplace. Like all other human endeavors these few details lead me to realize that this report is not perfect and also may contain human errors and shortcomings.

This project “**A Web Application for Power Generation Tracking**” is prepared for the partial fulfillment MSCSE program. The project completion would not have been possible without the contribution and collaboration of others. My sincere gratitude to almighty Allah who granted me this opportunity.

To the people of my previous workplace who has helped to learn PHP language and provided information about the local power generation companies’ regular needs. I would like to express my deepest gratitude to my supervisor **Prof. Dr. Mohammad Nurul Huda**, Professor and Director-MSCSE for his continuous supervision & support to improve this project. I am very much fortunate to receive this opportunity to do this project under the supervision of **Prof. Dr. Mohammad Nurul Huda** sir at United International University (UIU).

Finally, I would like to express my gratitude to my parents. Their continuous support & help made me successful to achieve this goal.

Table of Contents

LIST OF FIGURES	viii
1. Introduction.....	1
1.1 Existing Practice	1
1.1.1 Power Generation System	2
1.1.2 Tender Invitation	2
1.1.3 Notice Announcement	3
1.1.4 News Publication	3
1.1.5 Feedback Form	3
1.1.6 Complain Box.....	4
1.2 Benefits and Necessity of Generation Based Website	5
2. Background and Literature Review	6
2.1 System End Point.....	6
2.2 Design	7
2.2.1 Class Diagram.....	7
2.2.2 Data Flow Diagram.....	8
2.2.2 Use Case Diagram	9
3. Implementation & Testing	10
3.1 Implementation Overview	10
3.2 Methodology.....	10
3.2 Technology	11
3.3 Testing	11
3.3.1 Black Box Testing:	11
3.3.2 White Box Testing.....	12

4. A Web Application for Power Generation Tracking	13
4.1 Frontend View	13
4.2 Login Interface.....	15
4.3 Admin Dashboard.....	16
4.4 Generation Report Upload List.....	17
4.5 Generation Report Upload Form Admin Panel	18
4.6 Generation Report Visibility Form Frontend	19
4.5 Daily Generation Report.....	20
4.6 Monthly Generation Report	21
4.7 Day to Day Comparison Report	22
4.8 Month to Month Comparison Report	23
4.9 Tender Frontend View.....	24
4.10 Tender Upload Listing View in Admin Panel	25
4.11 Edit Uploaded Tender in Admin Panel.....	26
4.12 NEWS in Frontend	27
4.13 News in Admin Panel	28
4.14 Edit News in Admin Panel	29
4.15 Notice in Admin Panel.....	30
4.16 Edit Notice in Admin Panel.....	31
4.18 Career in Frontend	33
4.19 Career in Admin Panel.....	34
4.20 Career Edit in Admin Panel.....	35
4.21 Complain Form.....	36
4.22 Suggestion Form.....	37
4.23 Innovation Form	38

4.24 User Management.....	39
5. Conclusion.....	40
6. References.....	41
7. Appendix A.....	42

LIST OF FIGURES

Figure 1: Power Generation Daily Report	2
Figure 2 : Manual Tender Invitation.....	3
Figure 3: Class Diagram	7
Figure 4: Data Flow Diagram	8
Figure 5: Use Case Diagram.....	9
Figure 6 : Water Fall Model	10
Figure 7: Black Box Testing.....	11
Figure 8 : Frontend View.....	14
Figure 9 : Login Interface	15
Figure 10 : Admin Dashboard	16
Figure 11 : Generation Report Upload List	17
Figure 12 : Generation Report Upload Form Admin Panel.....	18
Figure 13 : Generation Report Visibility Form Frontend.....	19
Figure 14 : Daily Generation Report	20
Figure 15 : Monthly Generation Report	21
Figure 16: Day to Day Comparison Report.....	22
Figure 17: Month to Month Comparison Report.....	23
Figure 18 : Tender Frontend View	24
Figure 19 : Tender Upload Listing View in Admin panel.....	25
Figure 20 : Edit Uploaded Tender in Admin panel	26
Figure 21 : NEWS in Frontend.....	27
Figure 22 : News in Admin Panel.....	28
Figure 23 : Edit News in Admin Panel.....	29
Figure 24 : Notice in Admin Panel	30

Figure 25 : Edit Notice in Admin Panel	31
Figure 26 : Notice in Frontend.....	32
Figure 27 : Career in Frontend.....	33
Figure 28 : Career Edit in Admin Panel	35
Figure 29 : Complain Form	36
Figure 30 : Suggestion Form	37
Figure 31 : Innovation Form.....	38
Figure 32 : User Management	39

Chapter 1

Introduction

Every work has purpose. Generally, no work is done without any target. People from around the world are trying different ways to get success in their mission. A website can help to achieve the mission of expanding a business as well as symbolizing their development in technology of modern age. An information based website including the capability of handling internal office works has become a necessity for most of the Power Generation Company in Bangladesh.

Most of them need to have a website that can be used for publishing notice, releasing tender and publishing news. They also need a personal media to give circular for recruitment, collect client feedbacks and complains. The most complicated part of Power Generation Company is keeping update the per hour power generation rate and every concerned employee of the organization should acknowledge that.

Idea behind this project is to give a way for the power generation organizations to keep updated data of power generation. They can generate daily and monthly generation report. They can publish their regular notice, release tender, and publish news. They will get a media for proclaim circular for recruitment, collect client feedbacks and complains.

1.1 Existing Practice

Manual systems always tend to put pressure on people to be correct in all details of their work. The level of service is dependent on individuals with manual systems and this puts a requirement on management to continuously run training for staff. So that, the staff get motivated ensuring the procedures are followed properly. Accidentally switching the details and ending up with data inconsistency has the effect of causing problems with making reports and finding trends with data discovery. Reporting and checking that data can be timely robust and expensive. In this case an automation can save significant money and time.

1.1.1 Power Generation System

Every hour power generation is being tracked by document. If a power generation company has three power plants, then they have to track all daily power generation report through regular document. They do not have any way to share all the daily report through any system and find out the daily generation rate. When they want to get a monthly report of generated power then they have to calculate it manually. After the calculation they have to inform and save data manually.

Plant Code	Date (d-m-y)	Time	Install Capacity (MW)	Available Capacity (MW)	Gross Generation (MW)	Outage (MWh)	Net Despatch (MWh)
gazipur-power-plant	01-10-17	1	52.194	42.96	43.744	0.216	42.744
		2	52.194	42.96	43.904	0.204	42.756
		3	52.194	42.96	43.648	0.216	42.744
		4	52.194	42.96	44.032	0.204	42.756
		5	52.194	42.96	43.84	0.216	42.744
		6	52.194	42.96	43.648	0.252	42.708
		7	52.194	42.96	40.528	0	37.632
		8	52.194	42.96	26.992	0	25.584
		9	52.194	42.96	30.112	0	25.692
		10	52.194	42.96	15.92	0	21.216
		11	52.194	42.96	43.152	1.044	41.916
		12	52.194	42.96	43.024	1.152	41.808
		13	52.194	42.96	43.024	1.116	41.844
		14	52.194	42.96	43.056	1.104	41.856
		15	52.194	42.96	40.032	0	34.956

Figure 1: Power Generation Daily Report

1.1.2 Tender Invitation

Manually tender invitations are done or published through newspaper. The manual tender process can be long and cumbersome which can be costly for both buyer and supplier organizations.

Power Company Limited

Invitation for International Tenders

“শেখ হাসিনার উদ্যোগ-
ঘরে ঘরে বিদ্যুৎ”

Sealed tender is hereby invited from the bonafide supplier's for the under mentioned item(s) with the following conditions:			
1	Ministry/Division	Ministry of Power, Energy and Mineral Resources /Power Division	
2	Agency	Rural Power Company Limited	
3	Procuring Entity Name	Executive Director (Engineering) Rural Power Company Limited	
4	Procuring Entity District	Dhaka	
5	Invitation for	Procurement of Heavy Fuel Oil (HFO) and related service for Gazipur 52.194 MW Dual Fuel Power plant, a And 25.5 MW Dual Fuel Power plant, Raozan, Chittagong	
6	Procurement Method	Open Tendering Method (OTM)	
7	Source of Funds	wn fund	
Tender Inquiry No		PUR- 032 (FG/GPP-RPP/OTM)/2016-17	
		Date	Time
8	Starting Date and Time for Selling Tender Document.	12.06.2017	10:00 AM (Local Time)
9	Last Date and Time for selling Tender document	24.07.2017	05:00 PM (Local Time)
10	Last Date and Time for Submission of Tenders	25.07.2017	12.00 Noon (Local Time)

Figure 2 : Manual Tender Invitation

1.1.3 Notice Announcement

Regular office notice is hanged in notice board of the organization. To inform about the notice to concerned employee of different area one has to do phone call others or send email.

1.1.4 News Publication

To share the achievements, good or bad news of the company there is no other way accept to call or send mail.

1.1.5 Feedback Form

Client feedback is taken verbally. Sometimes client send mail to share their feedback.

Power generation companies need a Feedback form for general users to fill out

- General Feedback Form – A general Feedback form will be displayed on the website for users to write their comments/suggestion/feedback about the web site or company. (Front End Requirement)
- Instant notice to Super Administrator – When a Feedback form is filled out it is automatically forwarded to the Super Administrator and also received a notice on his/her e-mail. (Back End Requirement)
- Creative form design – The design of the form will have a creative and user friendly look. (Back End Requirement)

Form contents-

- Name
- Phone Number
- Email
- Message

1.1.6 Complain Box

For any kind of complain to inform there is no way accept placing a meeting with the concerned persons. So the power generation company needs a complain form for general users to fill out

- General Complain Form – A general complain form will be displayed on the website for users to write complain about the web site or company.
- Instant notice to Super Administrator – When a complain form is filled out it is automatically forwarded to the Super Administrator and also received a notice on his/her e-mail.
- Creative form design – The design of the form will have a creative and user friendly look. (Back End Requirement)

Form contents-

- Name
- Phone Number
- Email
- Complain

1.2 Benefits and Necessity of Generation Based Website

The followings are very important regular activities for power generation companies.

- Power generation update acknowledgment,
- Tender publication,
- News publication,
- Notice announcement
- Client feedback
- Client complain
- Vacancy announcement

An integration of all these functional activities in a single system as well as presenting organizations mission, vision achievements to client will be helpful for the organization to maintain their official activities and also maintain quality relationship with the client.

Chapter 2

Background and Literature Review

Power generation tracking is an absolute necessity for a power generation company. In old systems regular monitoring is done by document sharing or by email. Idea of this project is to keep updated about power generation rate per hour to every concerned employee of the organization. And also integrating Tender publication, News publication, and Notice announcement as well as creating an information based website.

2.1 System End Point

This system will provide following facilities:

- Power generation data upload, show daily & monthly generation report.
- Notice publication management
- Tender invitation management
- Internal news management
- Vacancy Announcement
- User Management

2.2 Design

2.2.1 Class Diagram

A class diagram is a static diagram that represents the static view of an application. It is used for documenting, describing and visualizing different aspects of a system. It describes the attributes and operations of a class and also the constraints imposed on the system.

Initially a class diagram has been prepared for the blueprint of the project. Class diagram visualize the relation between classes & the structure of the database relations. The following is the class diagram of my project.

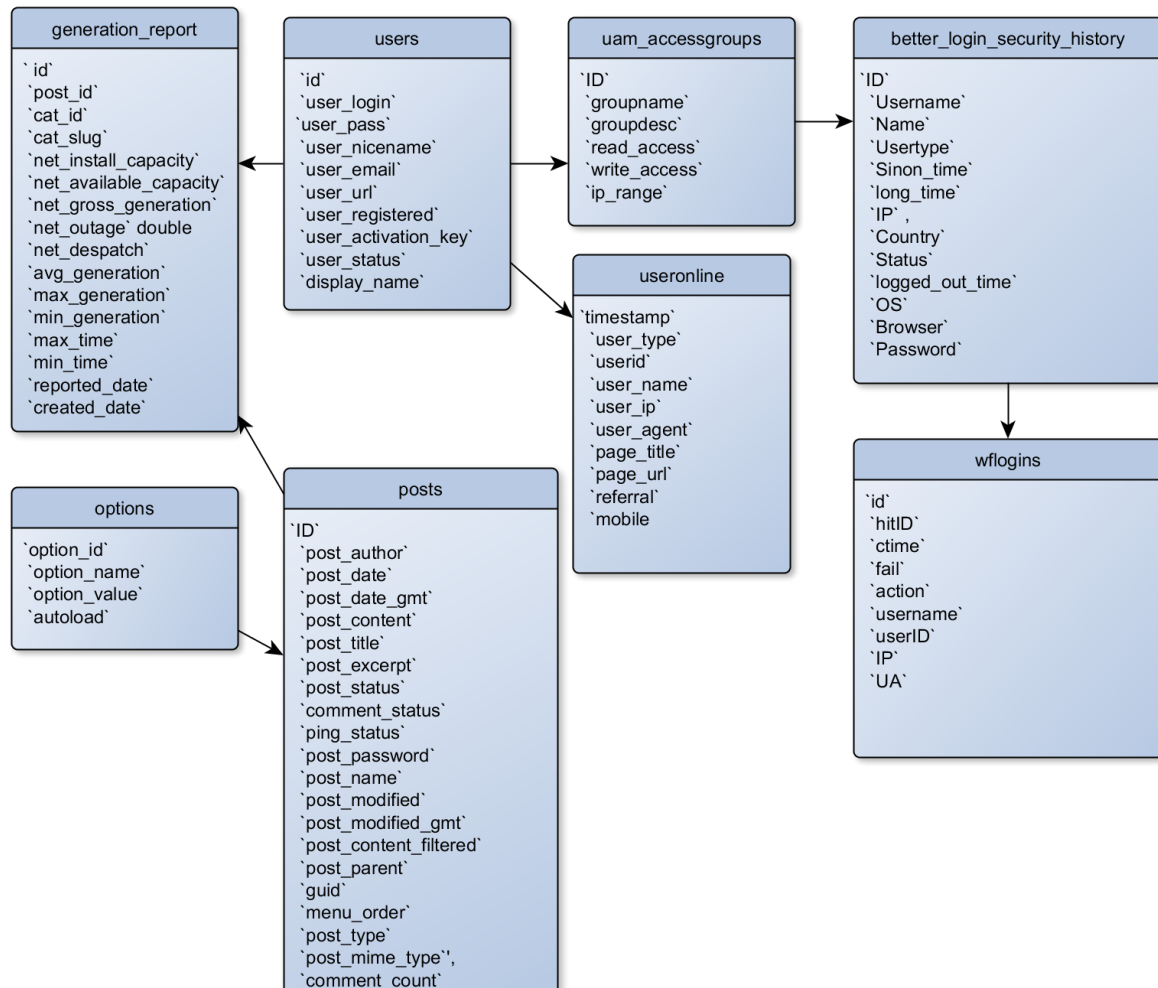


Figure 3: Class Diagram

2.2.2 Data Flow Diagram

For understanding the data flow or information flow from one process to another dataflow diagram has been made. The following is the data flow diagram of may project.

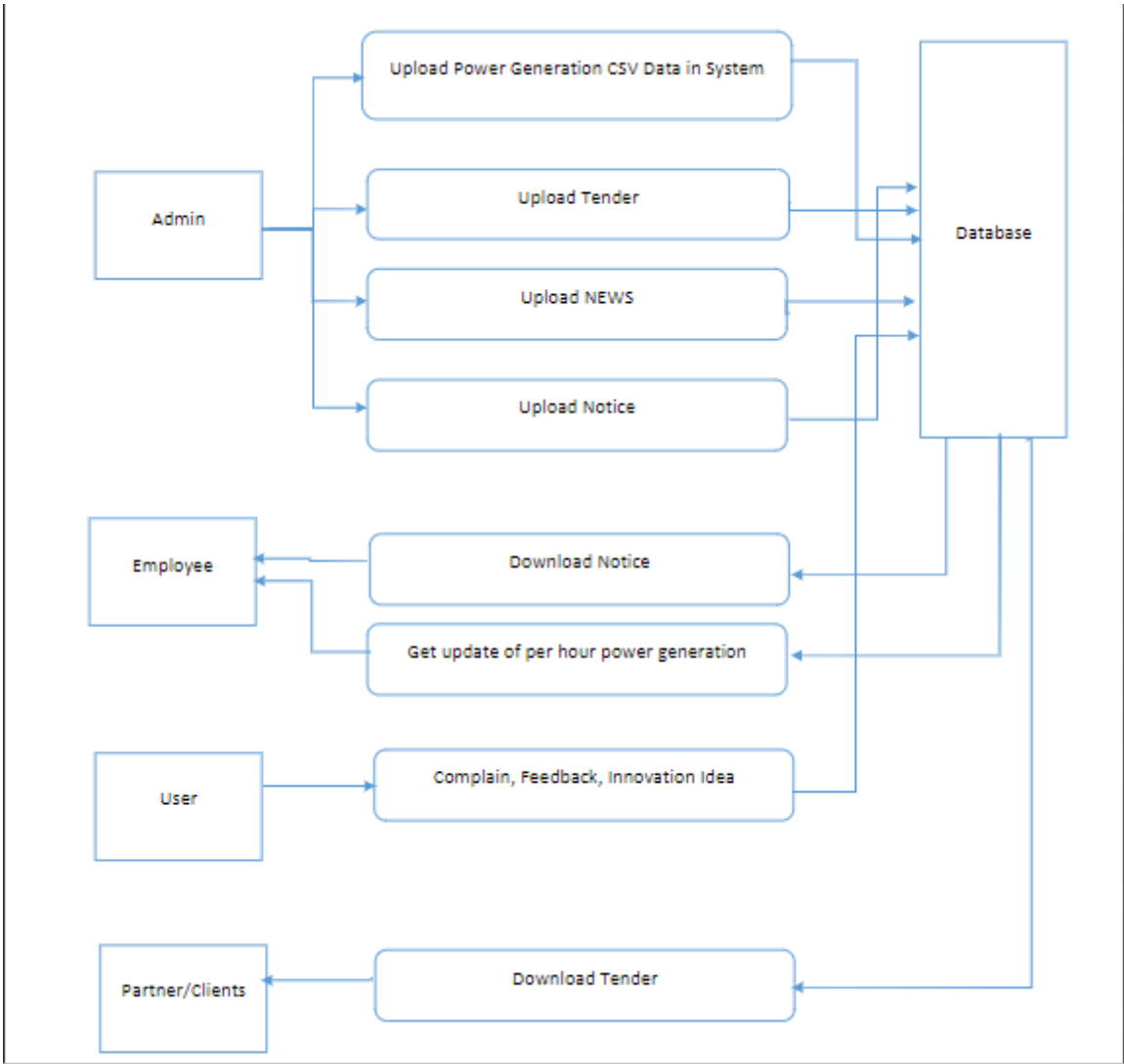


Figure 4: Data Flow Diagram

2.2.2 Use Case Diagram

For building a graphic representation of interaction between the elements of applications a use case diagram has been prepared. It will give a brief idea about which element will interact with which one.

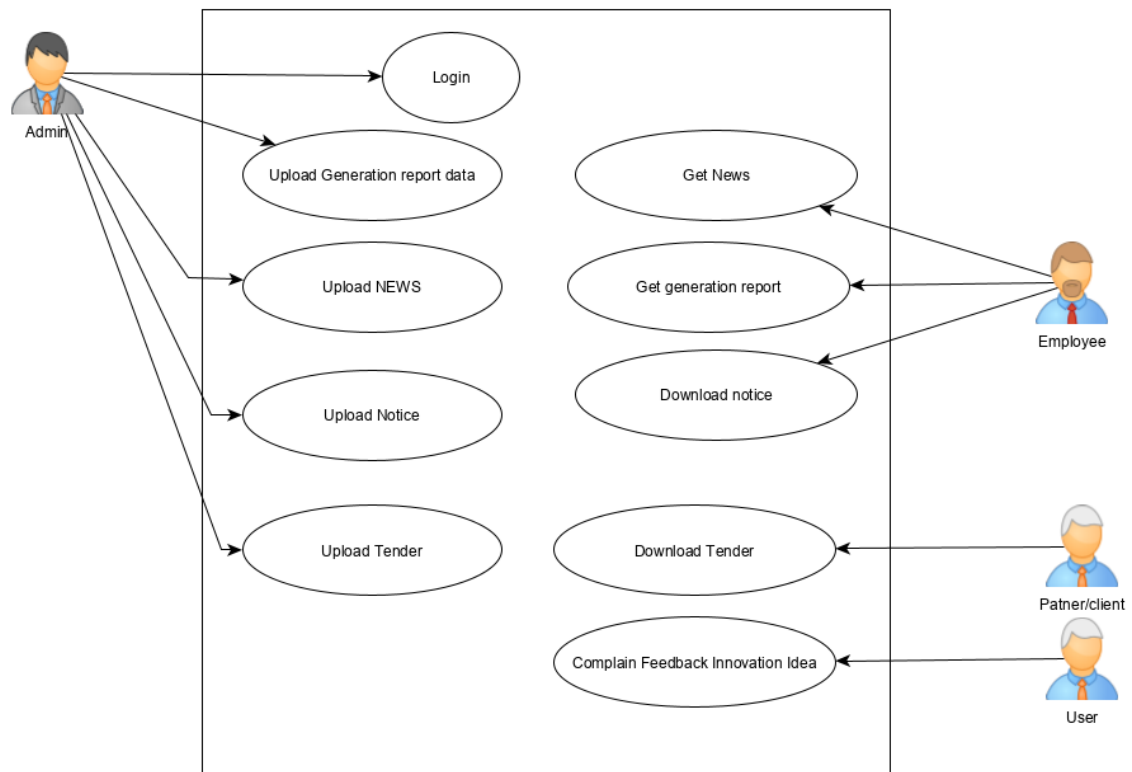


Figure 5: Use Case Diagram

Chapter 3

Implementation & Testing

3.1 Implementation Overview

This is a centralized web based project so that, user from different places will be able to access & interact with each other through this website. So making it as a web service based project is much helpful in here.

3.2 Methodology

I have used water fall model in this project. To prepare, plan & execute that whole project I have utilized this model. First of all, I have gathered requirement from the power generation company. I have collected information about their data and created dummy data and analyze them. Then I have designed the website which can fulfill their official regular needs. After developing the project, I verified the whole software & checked the system & process either works properly or not. I have continuously rechecked for error & bug and fixed them time to time.

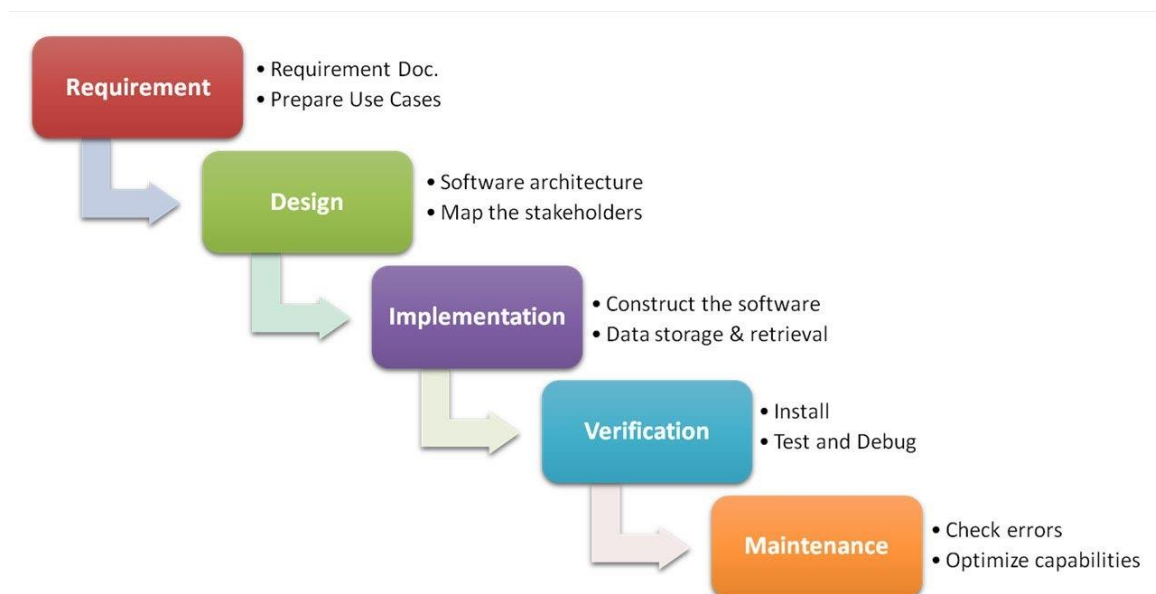


Figure 6 : Water Fall Model

3.2 Technology

There are two parts of this website. Frontend User Interface & Backend User Panel. Following technology, I have used for this project.

- Bootstrap & JavaScript for application User Interface
- PHP for functional development of both frontend and backend
- MYSQL for database
- PHPSTORM for service & UI
- PDF format downloader

3.3 Testing

Testing is the process of evaluating a system. To verify that the system or the systems' internal component(s) are satisfying the specified requirements or not is called Testing. For executing a system in order to identify any gaps, errors, or missing requirements in contrary to the actual requirements is testing. Testing can be two types:

1. Black Box Testing
2. White Box Testing

3.3.1 Black Box Testing:

It also known as Behavioral Testing. By this testing method the internal structure/design/implementation of the item being tested which is not known to the tester. These tests can be functional or non-functional.

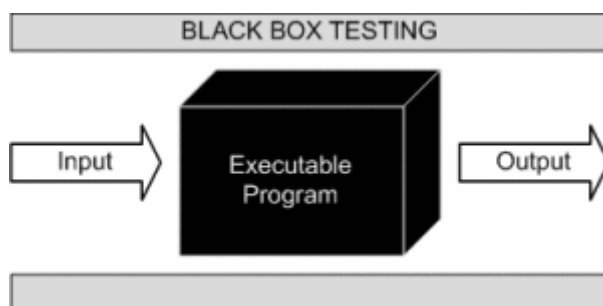


Figure 7: Black Box Testing

This method is named so because the software program, in the eyes of the tester, is like a black box; inside which one cannot see. This method attempts to find errors in the following categories:

- Incorrect or missing functions
- Interface errors
- Errors in data structures or external database access
- Behavior or performance errors
- Initialization and termination errors

For this testing I have let one of my friend to test the product. They have tested the applications by inputting data & checking validations. It confirmed me that the application is behaving properly as it should.

3.3.2 White Box Testing

It is also known as Clear Box Testing, Open Box Testing, Glass Box Testing, Transparent Box Testing, Code-Based Testing or Structural Testing is a software testing method in which the internal structure/design/implementation of the item being tested is known to the tester. The tester chooses inputs to exercise paths through the code and determines the appropriate outputs. Programming know-how and the implementation knowledge is essential. White box testing is testing beyond the user interface and into the nitty-gritty of a system.

This method is named so because the software program, in the eyes of the tester, is like a white/transparent box; inside which one clearly sees.

I did white box testing because I know all the requirements for the application, internal structure & coding. This gave me clear idea whether all the functions are working properly.

Chapter 4

A Web Application for Power Generation Tracking

4.1 Frontend View

Below I have given the frontend view of the main project. At the top most in the header part I have kept a place to show the logo of the company. Then the company's name. At right side I have kept two switchers that will translate the whole project into either English version or to Bangla version. There is a search box at the most right side.

After the header part I have keep the menus two browse the website. Below the header part I have keep a slide show where the company can share their important pictures. Slideshow is very vital part of frontend view. It expresses the company scenario, what is happening in the company, what the company work for. Institutional vision and mission can be expressed through this section.

Then the power plants & projects row a company can visibly show their existing, ongoing and up-coming projects. It will help their clients and partners to have a knowledge about them. Existing projects express the company strength.

In further topics, the company can share their investor's relation, news and total generation of the day. Total generation means the summation data of all project plants that are currently running.

As this power generation companies play vital role in the country for generation electricity they can share their clients or investors or partner's useful links.

Then anyone can give complain, suggestion and innovation idea through this links. At the footer, the social links are given.

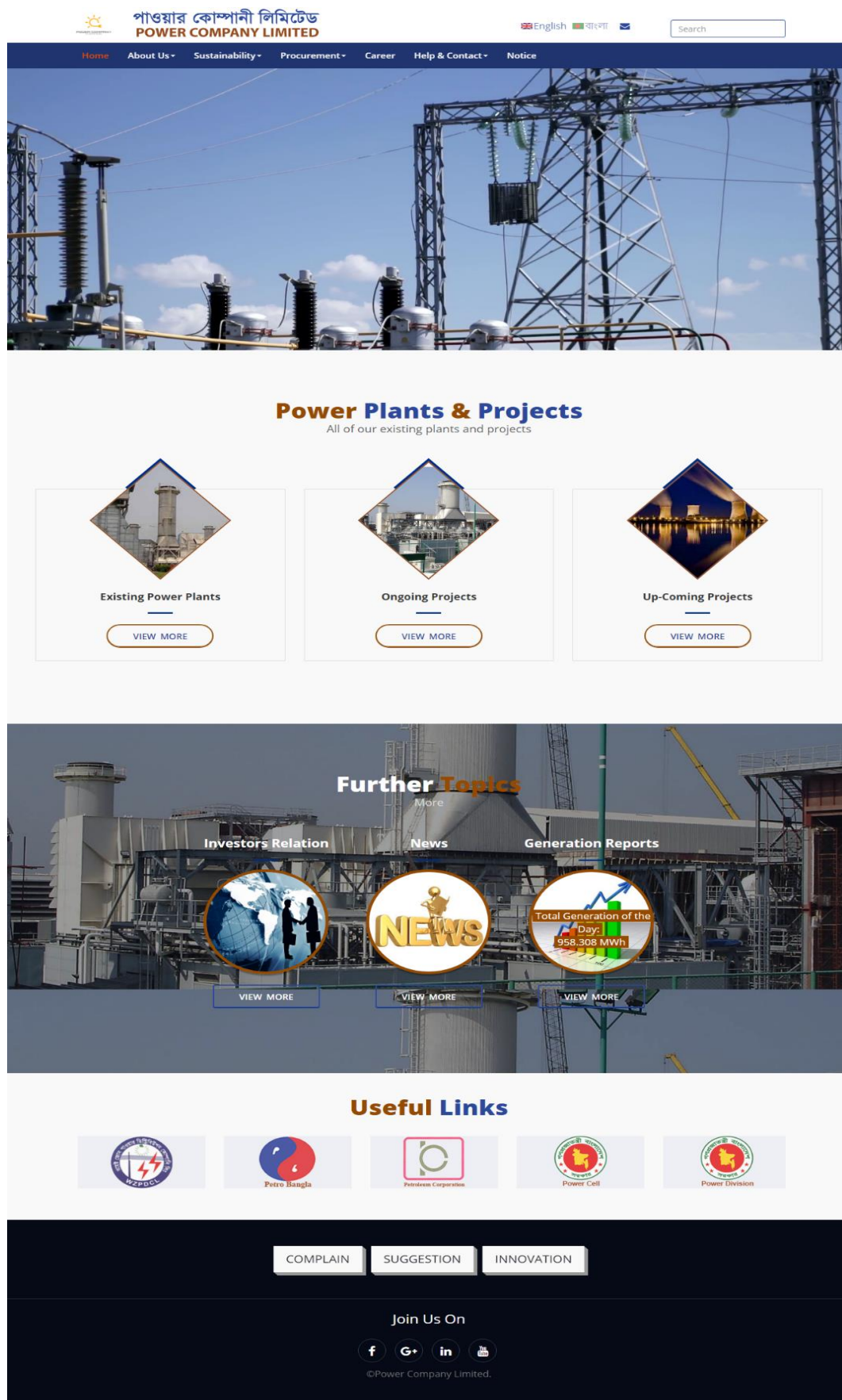
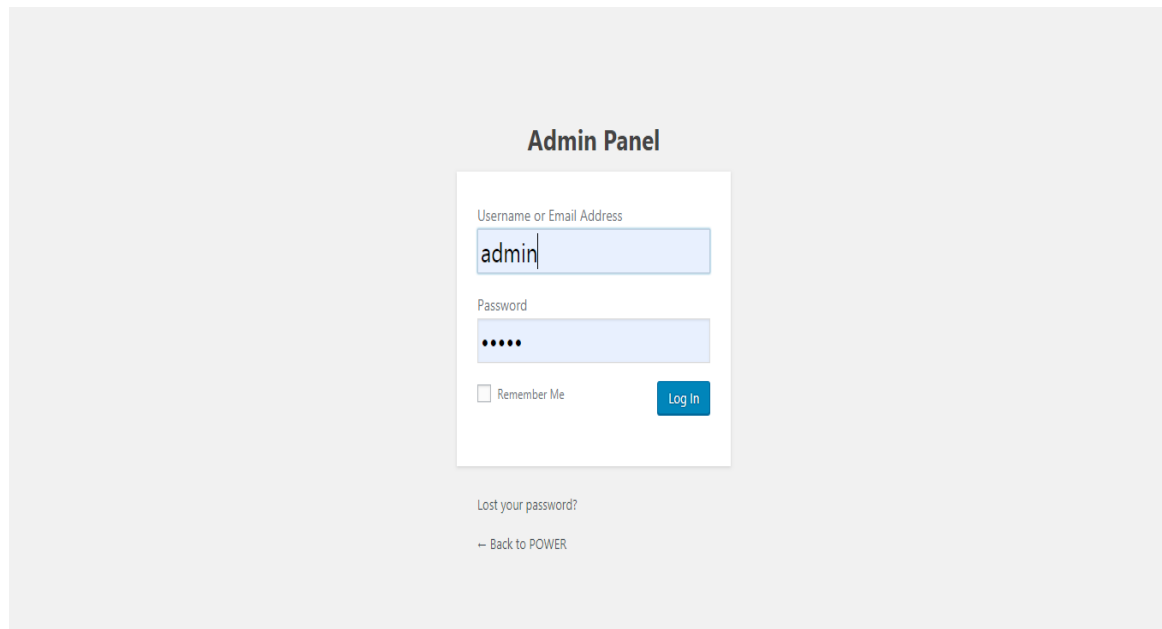


Figure 8 : Frontend View

4.2 Login Interface

This is the login interface of the system. User have to be registered first then he can log in through this system.



The image shows a login interface titled "Admin Panel". It features a central white box on a light gray background. Inside the box, there are two input fields: "Username or Email Address" with the text "admin" entered, and "Password" with five dots representing a masked password. Below the password field is a checkbox labeled "Remember Me" and a blue "Log In" button. At the bottom of the white box, there is a link "Lost your password?" and a link "← Back to POWER".

Figure 9 : Login Interface

4.3 Admin Dashboard

This is the main dashboard of the system. Almost every system user who has access to their own panel can see this kind of dashboard. On the left side there is a menu bar from which a user can do their regular work.

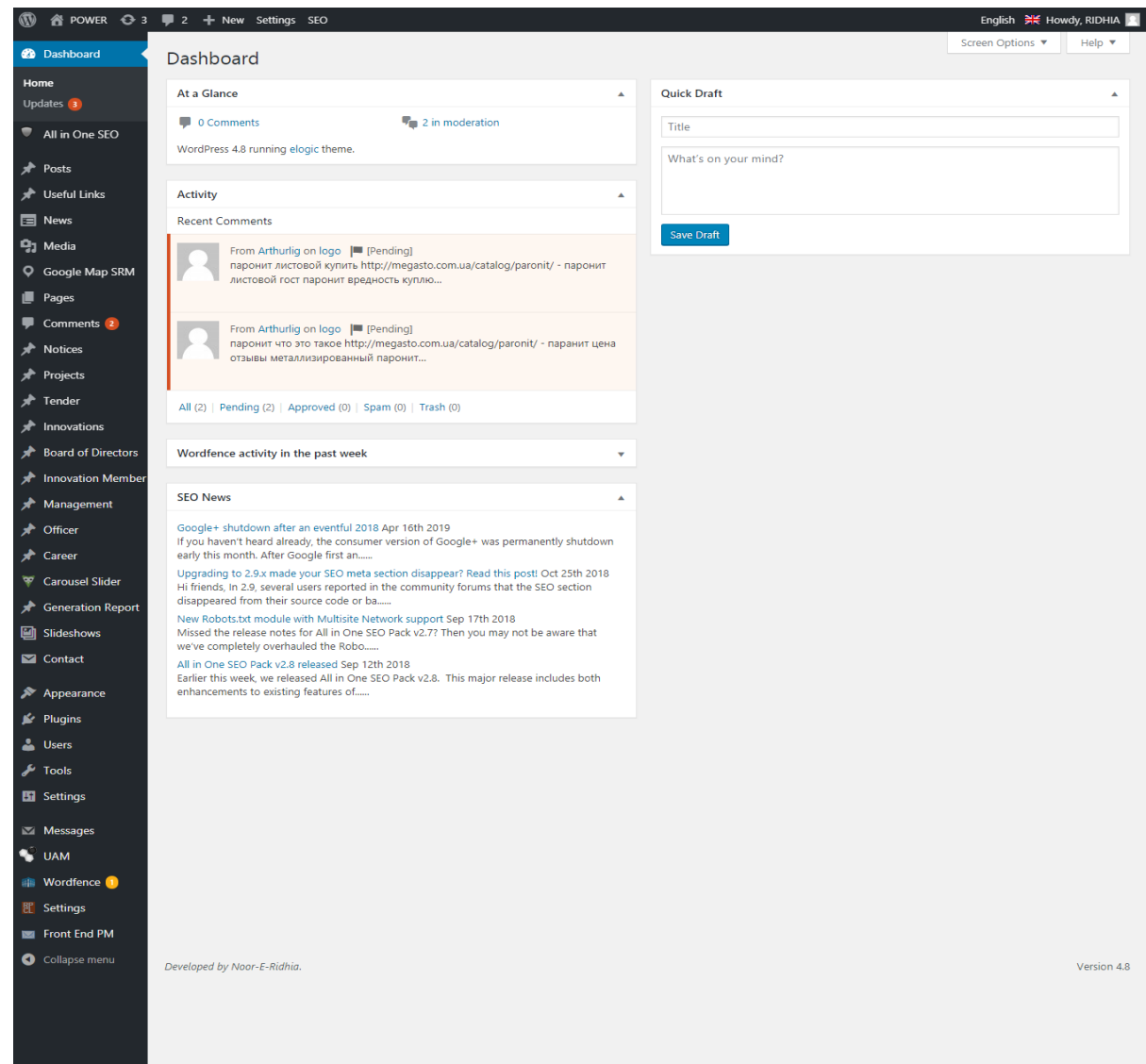


Figure 10 : Admin Dashboard

4.4 Generation Report Upload List

In admin panel this is the listing view of daily generation reports. From here user can publish, add, draft generation reports. Generation report will be in csv format. A defined format generation report should be uploaded and then plant category have to be selected.

The screenshot displays the 'Generation Reports' section of an admin panel. On the left is a dark sidebar with a menu including Dashboard, All in One SEO, Posts, Useful Links, News, Media, Google Map SRM, Pages, Comments (2), Notices, Projects, Tender, Innovations, Board of Directors, Innovation Member, Management, Officer, and Generation Report (highlighted). Below the menu are sections for 'All Item' (Add Item, Categories, Re-Order), 'Slideshow', 'Contact', 'Appearance' (Plugins, Users, Tools, Settings), 'Messages', 'UAM', 'Wordfence' (2), 'Settings', 'Front End PM', 'Collapse menu', and 'Tools'. The main content area is titled 'Generation Reports' with an 'Add Item' button. It shows a list of 424 items, with filters for 'All (424)', 'Mine (21)', 'Published (423)', and 'Draft (1)'. A search bar and pagination controls (424 items, 1 of 22) are at the top right. The table lists reports with columns for Title, Languages, Date, and Access. The first two items are 'GAZIPUR-POWER-PLANT-26-04-2019' and 'GAZIPUR-POWER-PLANT-27-04-2019', both published on 2019/04/27 with 'GPP-Power Generation' access. The remaining items are 'mymensingh-power-station-15-10-2017' through 'mymensingh-power-station-09-10-2017', all published between 2017/10/10 and 2017/10/16 with 'Full access'. The table ends with a 'Title' header row. At the bottom, it says 'Developed by Noor-E-Ridhia.' and 'Version 4.8'.

Title	Languages	Date	Access
GAZIPUR-POWER-PLANT-26-04-2019	Languages are not set	Published 2019/04/27	GPP-Power Generation
GAZIPUR-POWER-PLANT-27-04-2019	Languages are not set	Published 2019/04/27	GPP-Power Generation
mymensingh-power-station-15-10-2017	Languages are not set	Published 2017/10/16	Full access
GAZIPUR-POWER-PLANT-16-10-2017	Languages are not set	Published 2017/10/16	Full access
RAOZAN-POWER-PLANT-14-10-17	Languages are not set	Published 2017/10/15	Full access
mymensingh-power-station-14-10-2017	Languages are not set	Published 2017/10/15	Full access
GAZIPUR-POWER-PLANT-14-10-2017	Languages are not set	Published 2017/10/15	Full access
RAOZAN-POWER-PLANT-13-10-17	Languages are not set	Published 2017/10/14	Full access
mymensingh-power-station-13-10-2017	Languages are not set	Published 2017/10/14	Full access
GAZIPUR-POWER-PLANT-13-10-17	Languages are not set	Published 2017/10/14	Full access
mymensingh-power-station-12-10-2017	Languages are not set	Published 2017/10/13	Full access
GAZIPUR-POWER-PLANT-12-10-17	Languages are not set	Published 2017/10/13	Full access
RAOZAN-POWER-PLANT-11-10-17	Languages are not set	Published 2017/10/12	Full access
GAZIPUR-POWER-PLANT-11-10-2017	Languages are not set	Published 2017/10/12	Full access
mymensingh-power-station-11-10-2017	Languages are not set	Published 2017/10/12	Full access
RAOZAN-POWER-PLANT-10-10-17	Languages are not set	Published 2017/10/11	Full access
GAZIPUR-POWER-PLANT-10-10-2017	Languages are not set	Published 2017/10/11	Full access
mymensingh-power-station-10-10-2017	Languages are not set	Published 2017/10/11	Full access
RAOZAN-POWER-PLANT-09-10-17	Languages are not set	Published 2017/10/10	Full access
mymensingh-power-station-09-10-2017	Languages are not set	Published 2017/10/10	Full access
Title	Languages	Date	Access

Figure 11 : Generation Report Upload List

4.5 Generation Report Upload Form Admin Panel

A csv file of the daily generation report will be uploaded from here. Then the data of that sheet will be saved to the database. User can draft any generation report. If there is multiple power plant, then user have to select one power plant. In user access, admin can select the group who are authorized to access this report.

The screenshot displays the 'Edit Item' form for a generation report. The form is divided into several sections:

- Report Information:** Contains a title field with the value 'GAZIPUR-POWER-PLANT-26-04-2019' and a permalink field with the value 'http://localhost/projects/rpdlpro/generationreport/gazipur-power-plant-26-04-2019/'.
- Generation Information:** Contains a section for 'Upload Generation Report' with a text input field containing the URL 'http://localhost/projects/rpdlpro/wp-content/uploads/2019/04/gaz', an 'Add or Upload File' button, and a list of uploaded files including 'gazipur-power-plant-26-04-2019.csv'.
- Publish:** Contains a 'Status' field set to 'Published', a 'Visibility' field set to 'Public', and a 'Published on' date of 'Apr 27, 2019 @ 17:12'.
- Categories:** Contains a list of categories with checkboxes for 'Gazipur Power Plant', 'Mymensingh Power Station', and 'Raozan Power Plant'.
- Expire:** Contains a 'Status' field set to 'Disabled' and a date picker for 'Apr 27, 2019'.
- Access:** Contains a list of groups with checkboxes for 'HR Group', 'Accounts Group', 'Management Group', 'MPS-Power Generation', 'GPP-Power Generation (LR)', 'RPP-Power Generation', and 'IT'.

Figure 12 : Generation Report Upload Form Admin Panel

4.6 Generation Report Visibility Form Frontend

In this frontend view everyone can get the update about the daily generation summary. Now which is done by manual calculation and informed through mail or phone call or sms. For multiple power plant the generation summary is shown. And the total generation from all plants has been calculated at the top.

পাওয়ার কোম্পানী লিমিটেড
POWER COMPANY LIMITED

English বাংলা

Home About Us Sustainability Procurement Career Help & Contact Notice

Home > Generation Report

GENERATION REPORT

Daily Generation Summary(27-04-2019)

Total Dependable Capacity: 42.96 MW
Total Generation: 958.308 MWh
* This result based on: Gazipur Power Plant.

Plant Wise Generation Data(27-04-2019)

GAZIPUR POWER PLANT

Dependable Capacity: 42.96 MW
Maximum Generation: 42 MW
Average Generation: 39.93 MW
Total Generation: 958.308 MWh

[View Details](#)

MYMENSINGH POWER STATION

Dependable Capacity: Not Found MW
Maximum Generation: Not Found MW
Average Generation: Not Found MW
Total Generation: Not Found MWh

[View Details](#)

RAOZAN POWER PLANT

Dependable Capacity: Not Found MW
Maximum Generation: Not Found MW
Average Generation: Not Found MW
Total Generation: Not Found MWh

[View Details](#)

† All Results are Calculated by Approximate Value.

COMPLAIN SUGGESTION INNOVATION

Join Us On

f G+ in

©Power Company Limited.

Figure 13 : Generation Report Visibility Form Frontend

4.5 Daily Generation Report

These are the data that have been collected from the uploaded csv file. User have to select report type and date and then submit. Then the daily report summary will be seen with per hour gross generation rate [4].



পাওয়ার কোম্পানী লিমিটেড
POWER COMPANY LIMITED

English বাংলা

Search

Home About Us Sustainability Procurement Career Help & Contact Notice

Home > Generation Report > Gazipur Power Plant Generation Report

GAZIPUR POWER PLANT GENERATION REPORT

FIND REPORT
Report Type:
Select Timeline:

DAILY REPORT SUMMARY
Dependable Capacity(MW): **42.96**
Maximum Generation(MW): **42.78**
Average Generation(MW): **39.93**
Total Generation(MWh): **958.308**

HOURLY GENERATION REPORT

Time(Hr)	Installed Capacity(MW)	Dependable Capacity(MW)	Gross Generation(MW)	Net Dispatch(MW)
1 .00	52.194	42.96	42.976	41.868
2 .00	52.194	42.96	43.104	42
3 .00	52.194	42.96	43.008	42.132
4 .00	52.194	42.96	43.184	42.12
5 .00	52.194	42.96	43.008	42.132
6 .00	52.194	42.96	43.344	42.144
7 .00	52.194	42.96	43.248	42.18
8 .00	52.194	42.96	43.024	42.132
9 .00	52.194	42.96	43.088	41.808
10 .00	52.194	42.96	42.64	41.52
11 .00	52.194	42.96	42.64	41.436
12 .00	52.194	42.96	42.512	41.376
13 .00	52.194	42.96	42.864	41.664
14 .00	52.194	42.96	42.928	41.772
15 .00	52.194	42.96	34.112	31.02
16 .00	52.194	42.96	26.4	25.464
17 .00	52.194	42.96	26.208	25.548
18 .00	52.194	42.96	32.528	33.996
19 .00	52.194	42.96	43.728	42.6
20 .00	52.194	42.96	43.728	42.648
21 .00	52.194	42.96	43.712	42.636
22 .00	52.194	42.96	43.76	42.612
23 .00	52.194	42.96	43.776	42.72
24 .00	52.194	42.96	43.888	42.78

All Results are Calculated by Approximate Value.

COMPLAIN SUGGESTION INNOVATION

Join Us On



©Power Company Limited.

Figure 14 : Daily Generation Report

4.6 Monthly Generation Report

Here the monthly generation report is calculated from the daily generation data. Monthly KPI report is shown in here. Monthly plant factor, availability factor and auxiliary factor has been calculated. [4]



পাওয়ার কোম্পানী লিমিটেড
POWER COMPANY LIMITED

English বাংলা

Search

Home About Us Sustainability Procurement Career Help & Contact Notice

Home > Generation Report > Gazipur Power Plant Generation Report

GAZIPUR POWER PLANT GENERATION REPORT

FIND REPORT

Report Type: Monthly

Select Timeline: 27-04-2019

Submit

MONTHLY KPI INFORMATION

Installed Capacity (MW)	Dependable Capacity (MW)	Gross Generation(MWh)	Net Actual Energy Dispatch (MWh)	Available Generation (MWh)
52.19	42.96	1966.816	1916.616	2024.856

Monthly Plant Factor, Availability Factor and Auxiliary Consumption

Plant Factor (%)	Availability Factor (%)	Auxiliary Consumption (%)
92.95	80.82	2.55

All Results are Calculated by Approximate Value.

COMPLAIN SUGGESTION INNOVATION

Join Us On



©Power Company Limited.

Figure 15 : Monthly Generation Report

4.7 Day to Day Comparison Report

Day to day comparison report shows the difference between dependable capacity, maximum generation, average generation, total generation between the two dates.



পাওয়ার কোম্পানী লিমিটেড
POWER COMPANY LIMITED

English বাংলা

Search

Home About Us Sustainability Procurement Career Help & Contact Notice Report

Home > Day to Day comparison

DAY TO DAY COMPARISON

FIND DATE TO DATE COMPARISON REPORT

Report Type: Daily

First Date: 26-04-2019

Second Date: 04-08-2019

Submit

DATE TO DATE COMPARISON REPORT

Date	Dependable Capacity(MW)	Maximum Generation(MW)	Average Generation(MW)	Total Generation(MWh)
26-04-2019	42.96	42.78	39.93	958.308
04-08-2019	42.96	42.78	39.93	958.308

All Results are Calculated by Approximate Value.

COMPLAIN SUGGESTION INNOVATION

Join Us On



©Power Company Limited.

Figure 16: Day to Day Comparison Report

4.8 Month to Month Comparison Report

Month to month comparison report shows the difference between dependable capacity, maximum generation, average generation, total generation between the two dates.

Plant factor, Availability factor and auxiliary comparison are also shown.



পাওয়ার কোম্পানী লিমিটেড
POWER COMPANY LIMITED

English বাংলা

Search

Home About Us Sustainability Procurement Career Help & Contact Notice Report

Home > Month to Month Comparison

MONTH TO MONTH COMPARISON

FIND MONTH TO MONTH COMPARISON REPORT

Report Type: Monthly

First Date: 01-04-2019

Second Date: 26-08-2019

Submit

MONTHLY KPI INFORMATION

Month	Installed Capacity (MW)	Dependable Capacity (MW)	Gross Generation(MWh)	Net Actual Energy Dispatch (MWh)	Available Generation (MWh)
Apr.	52.19	42.96	1966.816	1916.616	2024.856
Aug.	52.19	42.96	983.408	958.308	993.816

Monthly Plant Factor, Availability Factor and Auxiliary Consumption

Month	Plant Factor (%)	Availability Factor (%)	Auxiliary Consumption (%)
Apr.	92.95	80.82	2.55
Aug.	92.95	79.34	2.55

All Results are Calculated by Approximate Value.

COMPLAIN SUGGESTION INNOVATION

Join Us On



©Power Company Limited.

Figure 17: Month to Month Comparison Report

4.9 Tender Frontend View

For this kind of autonomous or half-government power generation companies it's a common matter to publish tender. This is the front view of the tender publish. When any tender is published then the users can be able to download the tender notice. [3]

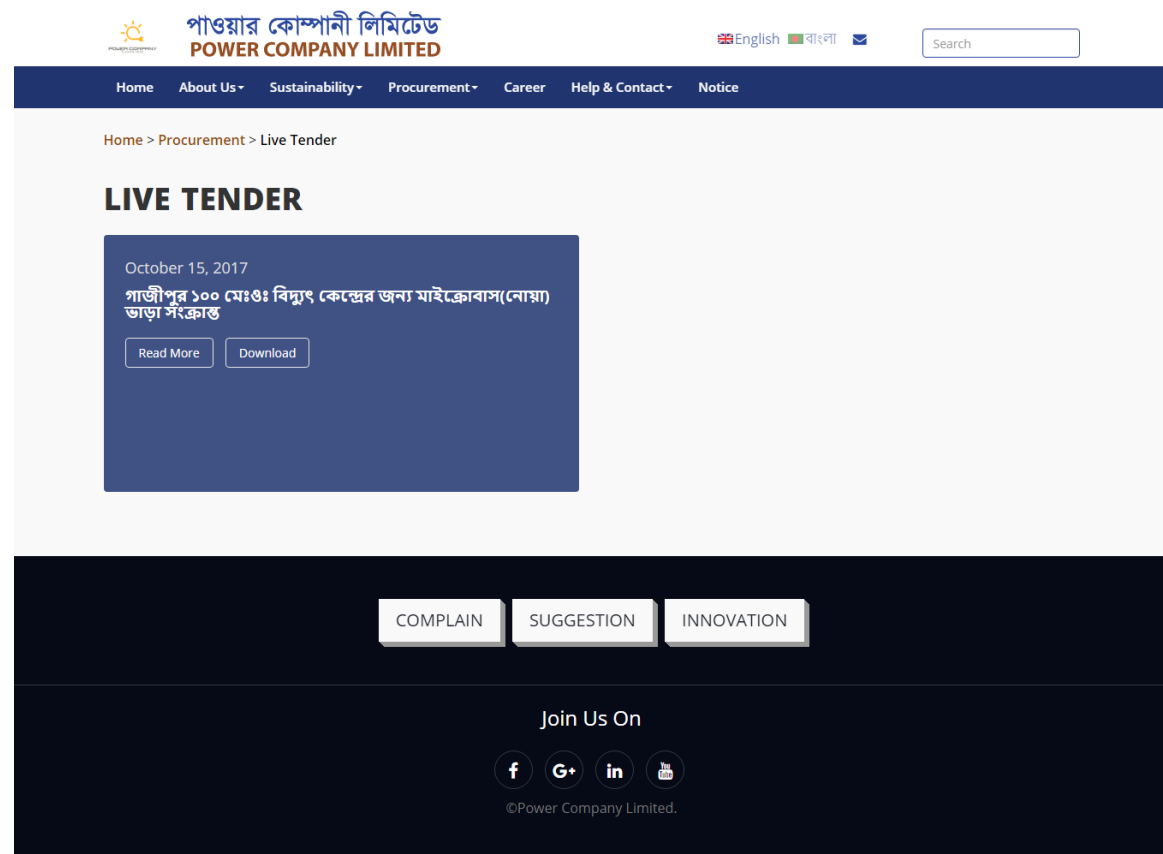


Figure 18 : Tender Frontend View

4.10 Tender Upload Listing View in Admin Panel

From here admin can publish tender. This is the listing view tender contents. [3]

The screenshot displays the 'Tenders' listing view in the admin panel. The sidebar on the left contains navigation links for various system components. The main area features a table with 7 items, each representing a tender. The table columns are Title, Languages, Date, and Access. The tenders listed include a microbus rental in Bangladesh, spare parts procurement for power plant engines, and pre-filter procurement for a power station. Each tender entry has a checkbox for selection and links for editing or viewing details.

Title	Languages	Date	Access
☐ গাজীপুর ১০০ মেগাওয়াট বিদ্যুৎ কেন্দ্রের জন্য মাইক্রোবাস(নোয়া) ভাড়া সংক্রান্ত	Languages are not set	Published 2017/10/15	Full access
☐ Procurement of Spare Parts for 24000 hr Schedule Maintenance of Wartsila 20V32GD Engines of Gazipur 52 MW & Raozan 25 MW Dual Fuel Power Plant. Publishing Date: 04.10.2017, Last date of Submission: 14.11.2017	English	Last Modified 2017/10/04	Full access
☐ Procurement of Pre-Filter for Mymensingh Power Station	Languages are not set	Last Modified 2017/09/27	Full access
☐ Procurement of Gas Turbine(Frame 6B) Air Intake Filter for Mymensingh Power Station, Mymensingh, Bangladesh. Publish date: 18.09.2017 & Submission deadline: 07.11.2017	Languages are not set	Last Modified 2017/09/18	Full access
☐ Test2	English, বাংলা	Published 2017/01/17	Full access
☐ Test Live Tender Edit Quick Edit Trash View	English	Last Modified 2017/01/14	Full access
☐ Design, Supply, Installation and Commissioning of 20 KWp Grid Tied Solar PV System with structure at Kodda 150MW Dual Fuel Power Plant on Turnkey basis.	Languages are not set	Last Modified 2017/02/07	Full access

Figure 19 : Tender Upload Listing View in Admin panel

4.11 Edit Uploaded Tender in Admin Panel

Uploading view of a tender notice. Here user have to give a title then can edit tender notice in the editor or can upload tender notice in pdf format. This site is in two languages so user have to post both in Bangla and English. [3]

The screenshot displays the 'Edit Tender' interface in an admin panel. The left sidebar contains a navigation menu with options like Dashboard, All in One SEO, Posts, Useful Links, News, Media, Google Map SRM, Pages, Comments, Notices, Projects, Tender, All Tender, Add New, Categories, Re-Order, Innovations, Board of Directors, Innovation Member, Management, Officer, Career, Carousel Slider, Generation Report, Slideshows, Contact, Appearance, Plugins, Users, Tools, Settings, Messages, UAM, Wordfence, Settings, Front End PM, and Collapse menu. The main content area is titled 'Edit Tender' and includes a language selector (English/Bangla), a title field with the text 'গাজীপুর ১০০ মেঃঃ বিদ্যুৎ কেন্দ্রের জন্য মাইক্রোবাস(নোয়া) ভাড়া সংক্রান্ত', a permalink field, and a rich text editor with a PDF embedder. The right sidebar contains sections for Publish, Categories, Expire, and Access. The footer shows 'Developed by Noor-E-Ridhia' and 'Version 4.8'.

Edit Tender [Add New](#)

English [বাংলা](#)

গাজীপুর ১০০ মেঃঃ বিদ্যুৎ কেন্দ্রের জন্য মাইক্রোবাস(নোয়া) ভাড়া সংক্রান্ত

Permalink: <http://localhost/projects/rpclpro/tender/গাজীপুর-১০০-মেঃঃ/> [Edit](#)

[Add Media](#) [Embed Google Map](#) [Insert Slideshow](#) [Visual](#) [Text](#)

[b](#) [i](#) [link](#) [b-quote](#) [del](#) [ins](#) [img](#) [ul](#) [ol](#) [li](#) [code](#) [more](#) [close tags](#)

[pdf-embedder url="http://localhost/projects/rpclpro/wp-content/uploads/2017/10/Rfq-for-vehicle-rent-of-GPP-100MW.pdf" title="RFQ for vehicle rent of GPP 100MW"]

Word count: 0 Last edited by RIDHIA on April 27, 2019 at 1:17 pm

English [বাংলা](#)

Tender Link and title.

Upload Tender [Add or Upload File](#)

Upload General Tender or enter an URL
File: RFQ-for-vehicle-rent-of-GPP-100MW.pdf [Download](#) / [Remove](#)

English [বাংলা](#)

Publish

[Preview Changes](#)

Status: Published [Edit](#)

Visibility: Public [Edit](#)

Published on: Oct 15, 2017 @ 14:27 [Edit](#)

[Move to Trash](#) [Update](#)

Categories

[Categories](#) [Most Used](#)

☒ General Tender

☐ Award

☐ E Tender

[+ Add New Category](#)

Expire

☐ Enabled ☒ Disabled

Oct 15 2019

14 : 12

Insert a date for expire.

Access

☐ HR Group ([Info](#))

☐ Accounts Group ([Info](#))

☐ Management Group ([Info](#))

☐ MPS-Power Generation ([Info](#))

☐ GPP-Power Generation ([Info](#))

☐ RPP-Power Generation ([Info](#))

☐ IT ([Info](#))

Developed by Noor-E-Ridhia. Version 4.8

Figure 20 : Edit Uploaded Tender in Admin panel

4.12 NEWS in Frontend

Publishing NEWS in frontend. These are official news that are shared with the organization related person.

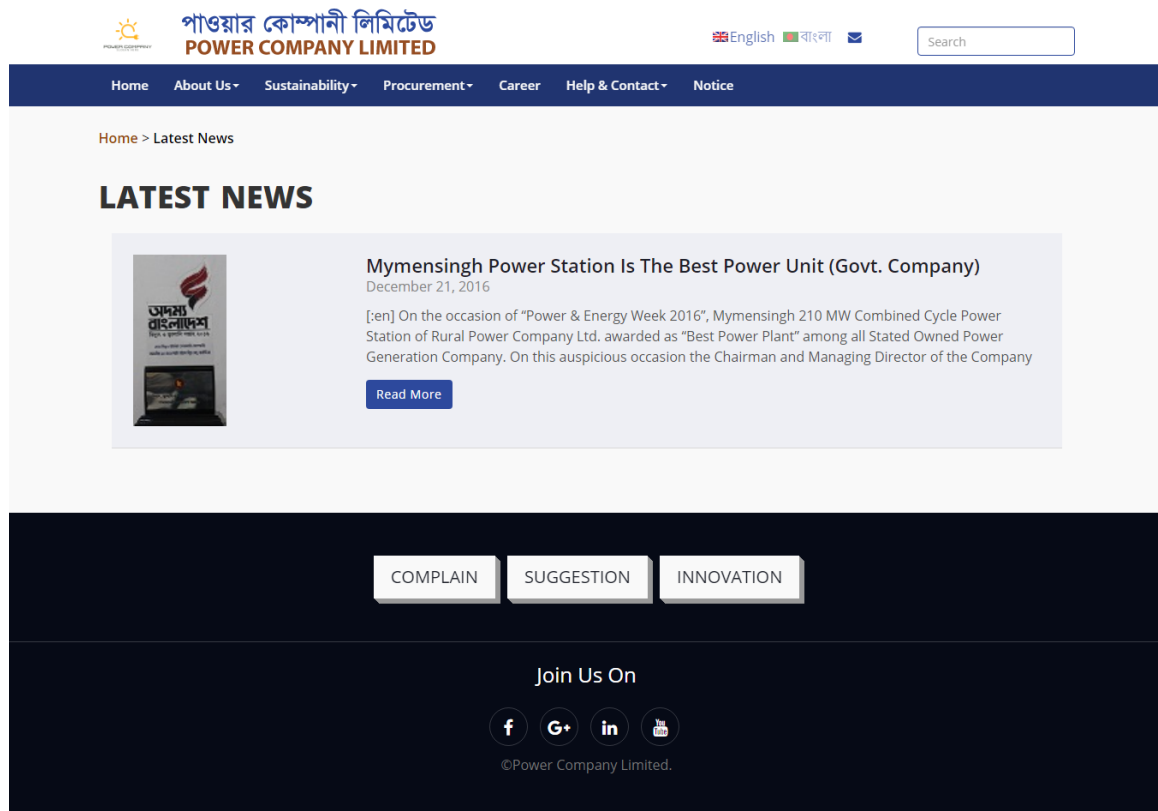
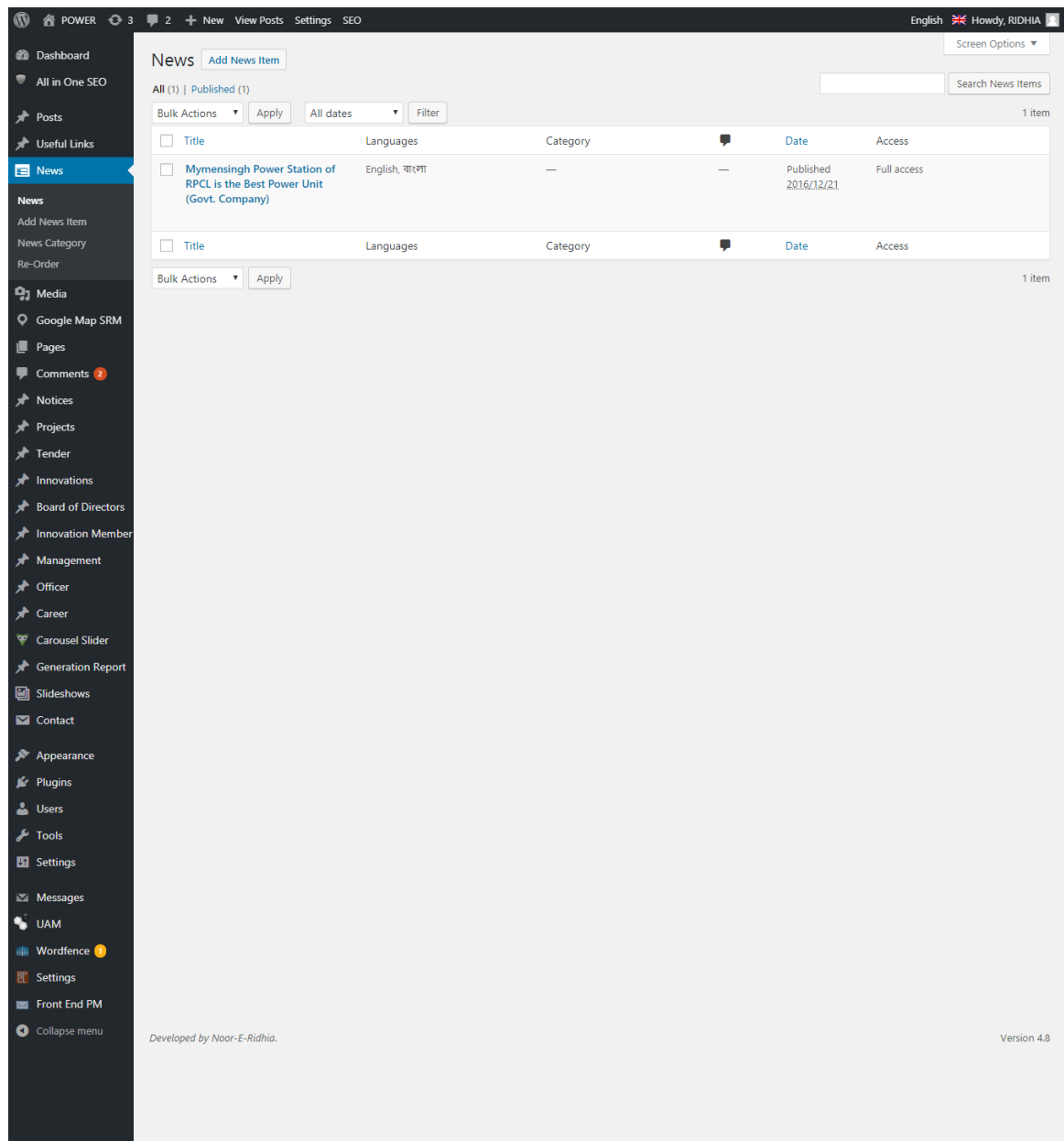


Figure 21 : NEWS in Frontend

4.13 News in Admin Panel

From here the news is uploaded. This is the listing view of news in admin panel.



The screenshot displays the 'News' section of an admin panel. On the left is a dark sidebar with a menu containing items like Dashboard, All in One SEO, Posts, Useful Links, News (highlighted), Media, Google Map SRM, Pages, Comments (2), Notices, Projects, Tender, Innovations, Board of Directors, Innovation Member, Management, Officer, Career, Carousel Slider, Generation Report, Slideshows, Contact, Appearance, Plugins, Users, Tools, Settings, Messages, UAM, Wordfence (1), Settings, Front End PM, and Collapse menu. The main content area is titled 'News' and includes an 'Add News Item' button. Below this, there are filters for 'All (1)' and 'Published (1)', along with 'Bulk Actions' and 'Apply' buttons. A table lists the news items with columns for Title, Languages, Category, Date, and Access. One item is listed: 'Mymensingh Power Station of RPCL is the Best Power Unit (Govt. Company)' in English and Bengali, published on 2016/12/21, with full access. At the bottom, it says 'Developed by Noor-E-Ridhia.' and 'Version 4.8'.

☐	Title	Languages	Category	Date	Access
☐	Mymensingh Power Station of RPCL is the Best Power Unit (Govt. Company)	English, বাংলা	—	Published 2016/12/21	Full access

Figure 22 : News in Admin Panel

4.14 Edit News in Admin Panel

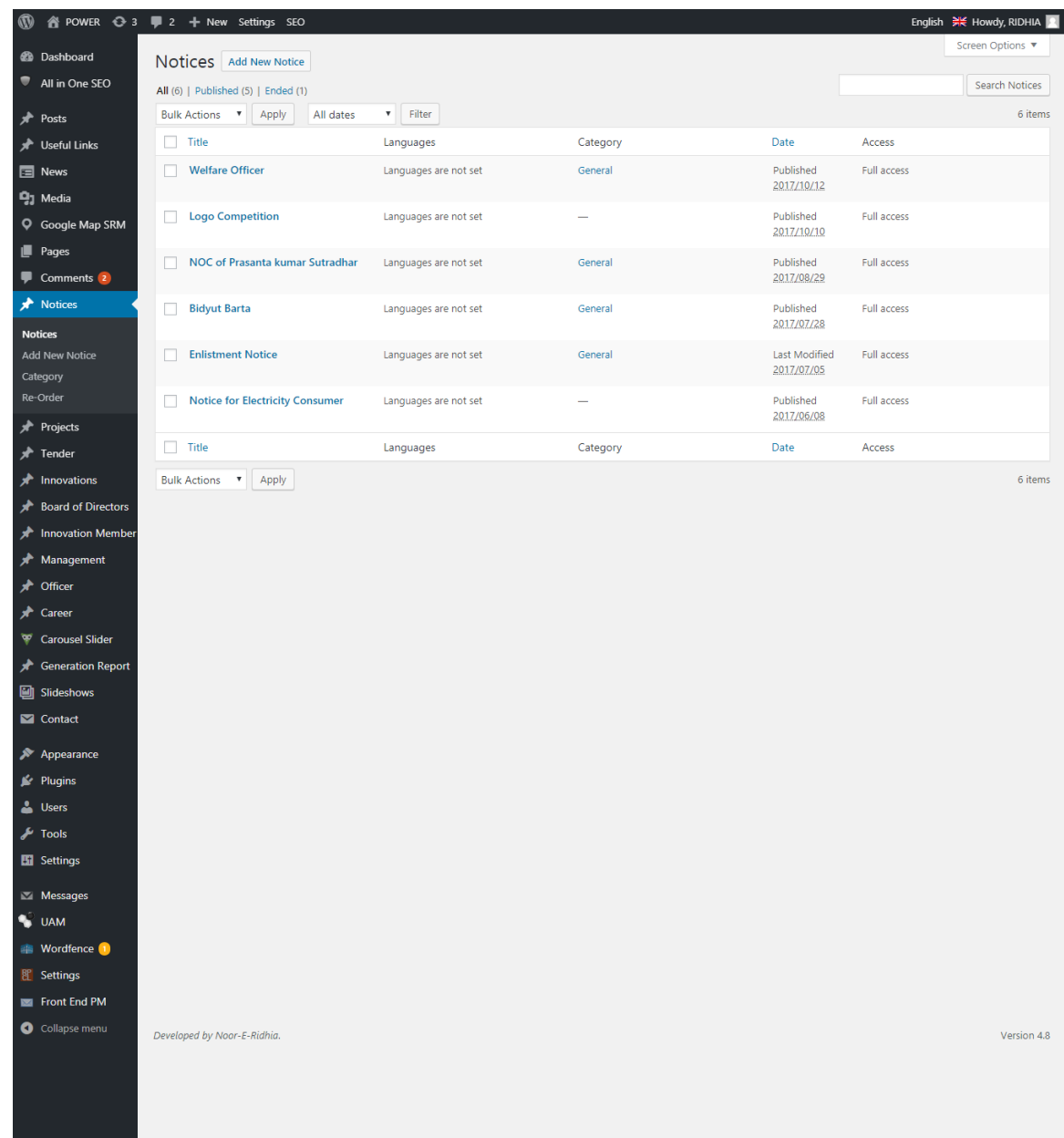
Demo news uploaded to show in front. News can be written in both Bangla and English. PDF file also can be uploaded.

The screenshot displays the 'Edit News Item' interface in the admin panel. The left sidebar contains navigation links: Dashboard, All in One SEO, Posts, Useful Links, News (selected), Add News Item, News Category, Re-Order, Media, Google Map SRM, Pages, Comments (2), Notices, Projects, Tender, Innovations, Board of Directors, Innovation Member, Management, Officer, Career, Carousel Slider, Generation Report, Slideshows, Contact, Appearance, Plugins, Users, Tools, Settings, Messages, UAM, Wordfence (1), Settings, Front End PM, and Collapse menu. The main content area is titled 'Edit News Item' and includes a language selector (English/Bangla), a title field, a permalink, and buttons for 'Add Media', 'Embed Google Map', and 'Insert Slideshow'. The text editor shows HTML code for the content, including image tags and a paragraph about the Mymensingh 210 MW Combined Cycle Power Station. Below the editor are sections for Excerpt, Discussion (with checkboxes for 'Allow comments' and 'Allow trackbacks and pingbacks'), Comments (with an 'Add comment' button), and a language selector. The right sidebar contains settings for Publish (Status: Published, Visibility: Public, Published on: Dec 21, 2016), Category (All Category, Most Used), Expire (Enabled/Disabled, date/time), Access (checkboxes for various groups), and Featured Image (with a 'Click the image to edit or update' link and a 'Remove featured image' link). The footer shows 'Developed by Noor-E-Ridhia' and 'Version 4.8'.

Figure 23 : Edit News in Admin Panel

4.15 Notice in Admin Panel

From here admin can publish notice for the employees. This is the listing view of all notices.



The screenshot displays the 'Notices' section of an admin panel. The left sidebar contains various navigation options, with 'Notices' highlighted. The main content area shows a table of 6 notices. The table has columns for Title, Languages, Category, Date, and Access. The notices listed are: Welfare Officer, Logo Competition, NOC of Prasanta kumar Sutradhar, Bidyut Barta, Enlistment Notice, and Notice for Electricity Consumer. Each notice has a checkbox for selection and a 'Full access' status.

☐ Title	Languages	Category	Date	Access
☐ Welfare Officer	Languages are not set	General	Published 2017/10/12	Full access
☐ Logo Competition	Languages are not set	—	Published 2017/10/10	Full access
☐ NOC of Prasanta kumar Sutradhar	Languages are not set	General	Published 2017/08/29	Full access
☐ Bidyut Barta	Languages are not set	General	Published 2017/07/28	Full access
☐ Enlistment Notice	Languages are not set	General	Last Modified 2017/07/05	Full access
☐ Notice for Electricity Consumer	Languages are not set	—	Published 2017/06/08	Full access

Figure 24 : Notice in Admin Panel

4.16 Edit Notice in Admin Panel

Edit view of notice in admin panel. Pdf file also can be uploaded.

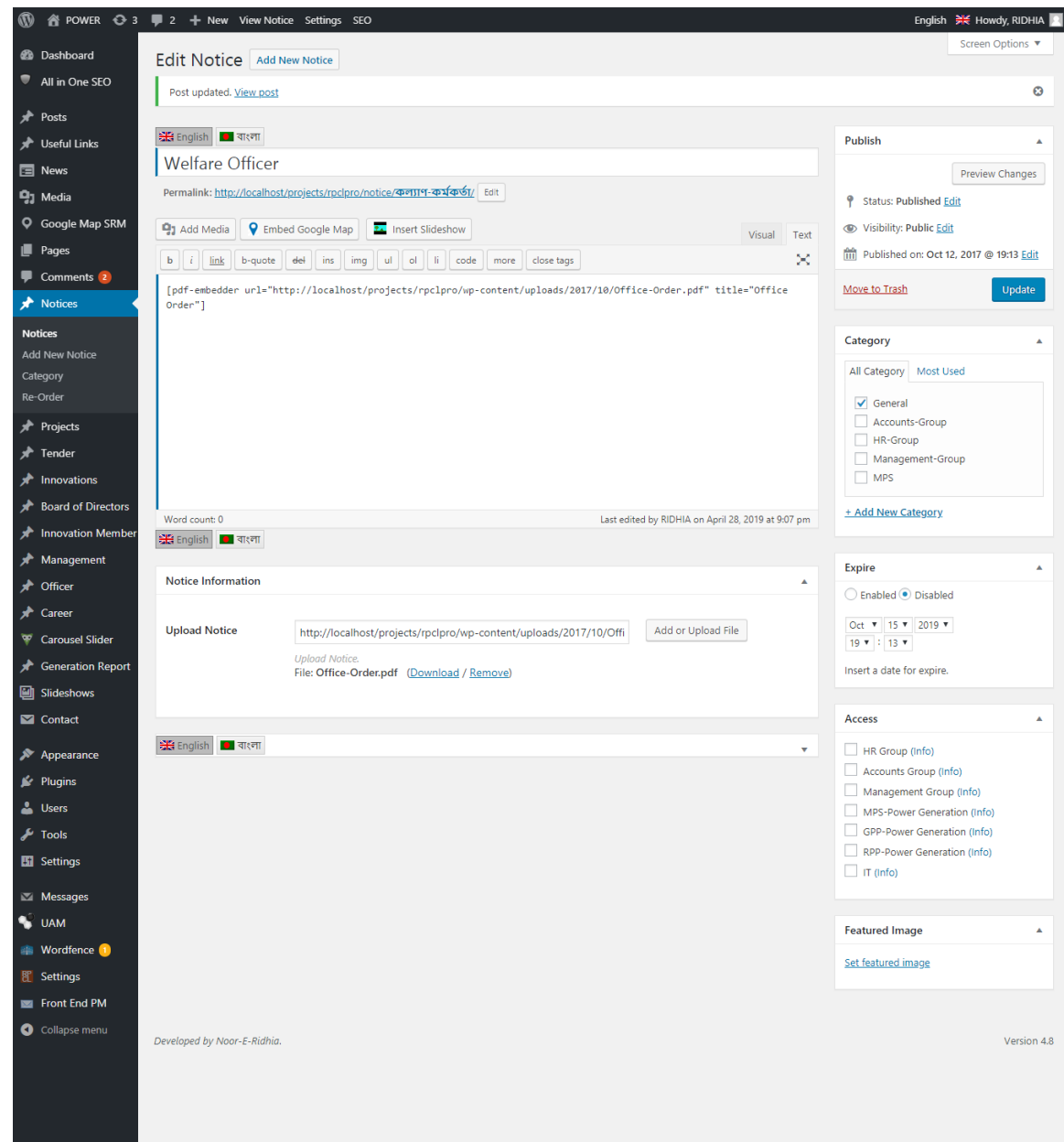


Figure 25 : Edit Notice in Admin Panel

4.17 Notice in Frontend

Notice which are published in front end. Users will be able to download pdf format notice file.

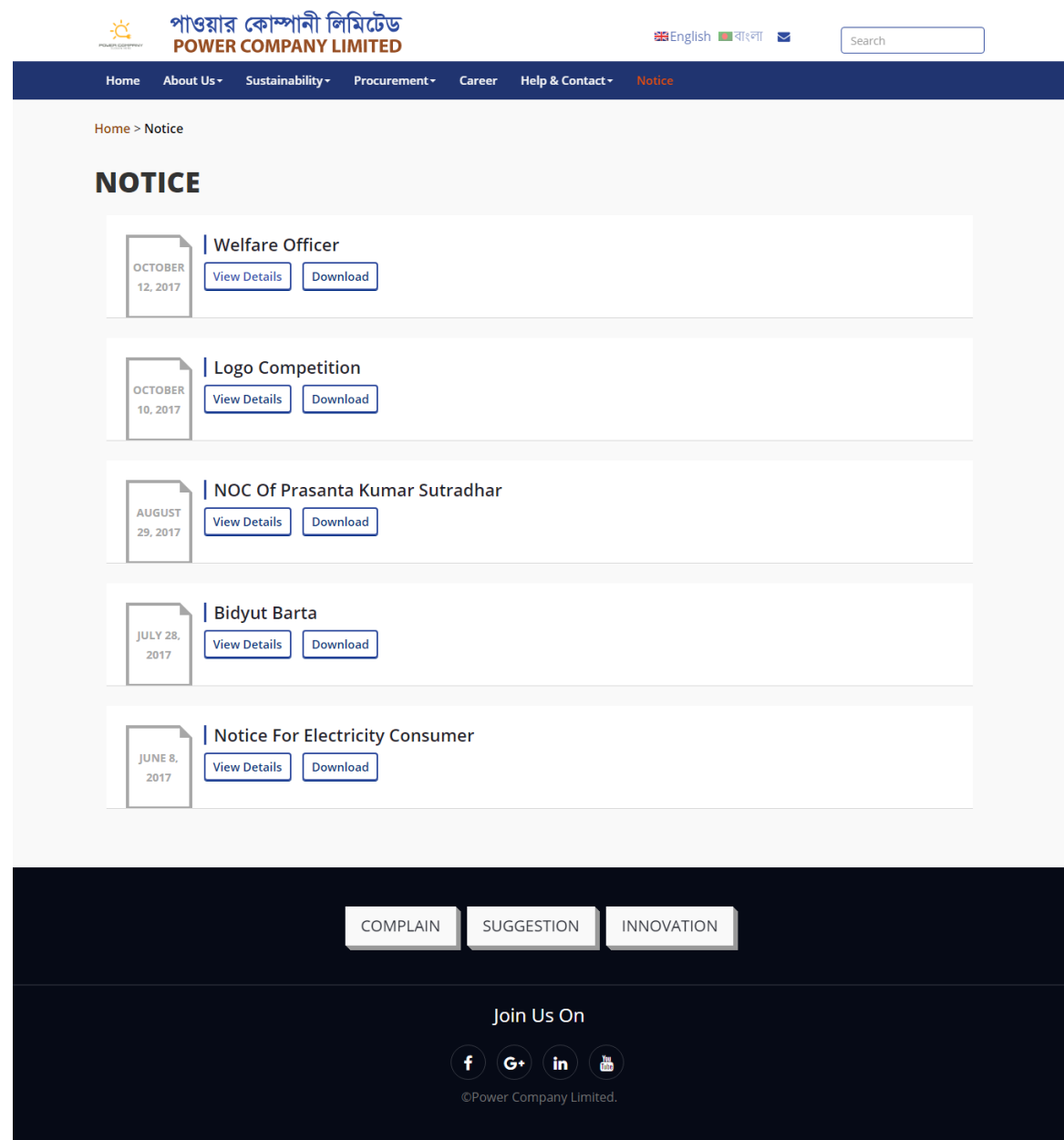


Figure 26 : Notice in Frontend

4.18 Career in Frontend

Job vacancy announcement is done in front end of the website. Job seekers will be able to see vacancy notice and download the requirement in pdf format. [2]

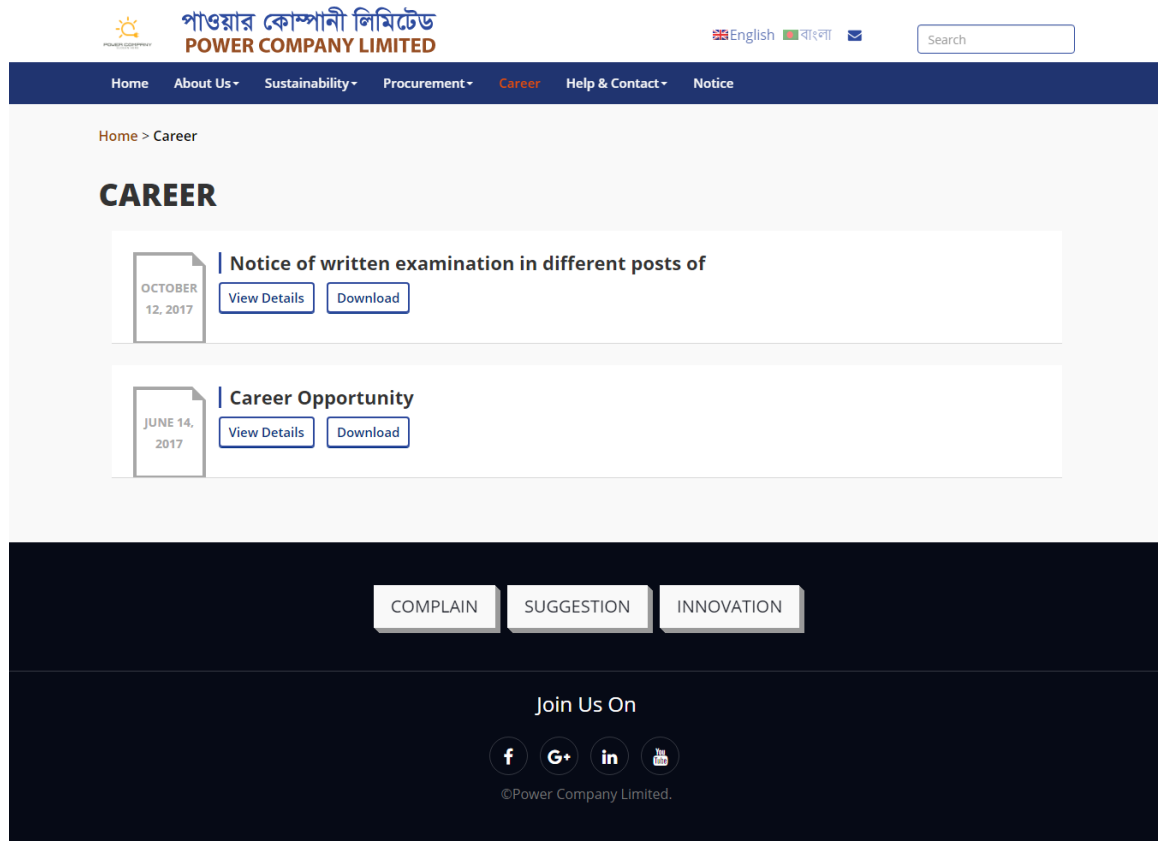


Figure 27 : Career in Frontend

4.19 Career in Admin Panel

Job vacancy listing view in the admin panel.

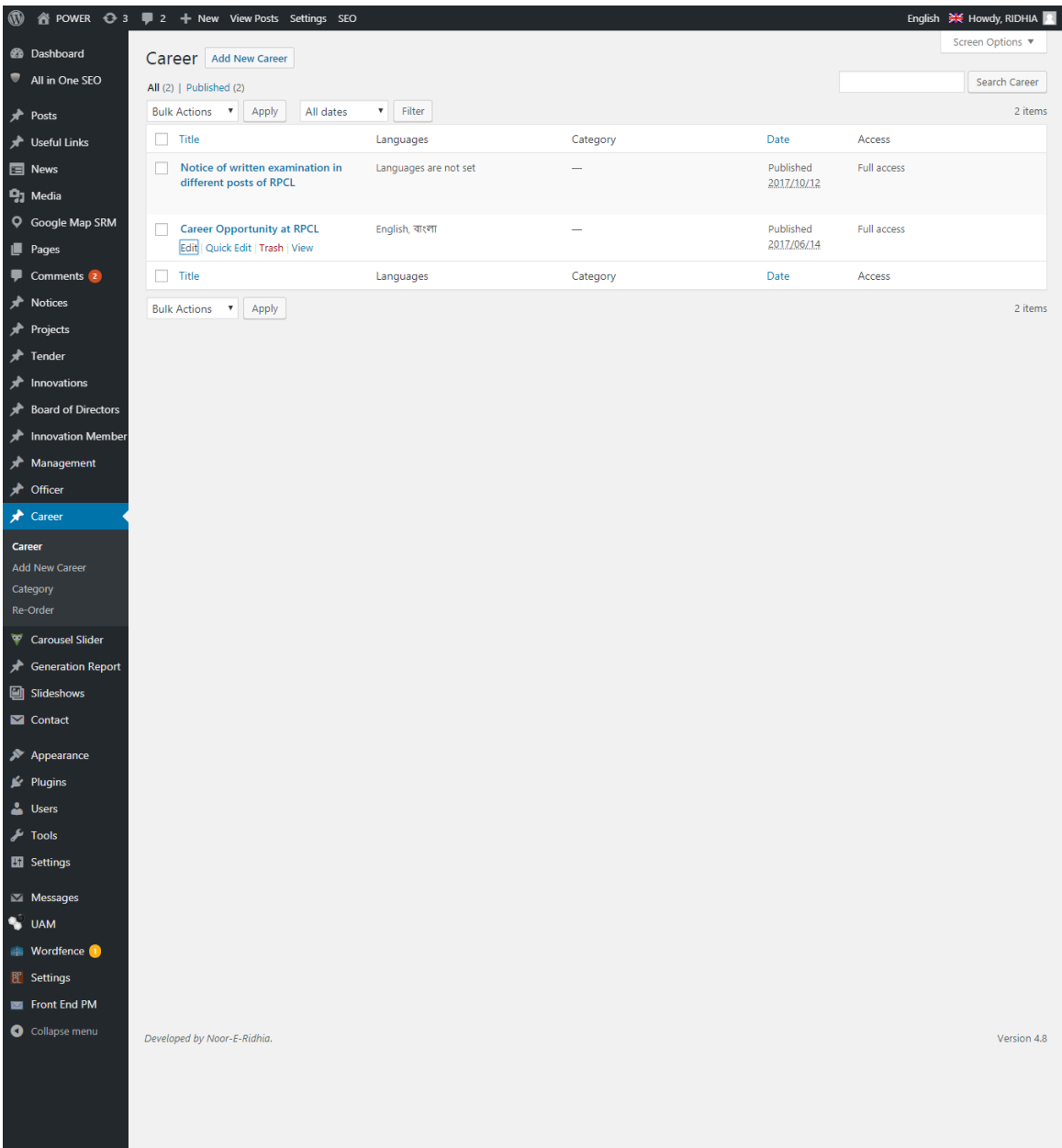


Figure 28: Career in Admin Panel

4.20 Career Edit in Admin Panel

New job post is done from here. Also pdf file or image can be uploaded from this edit view.

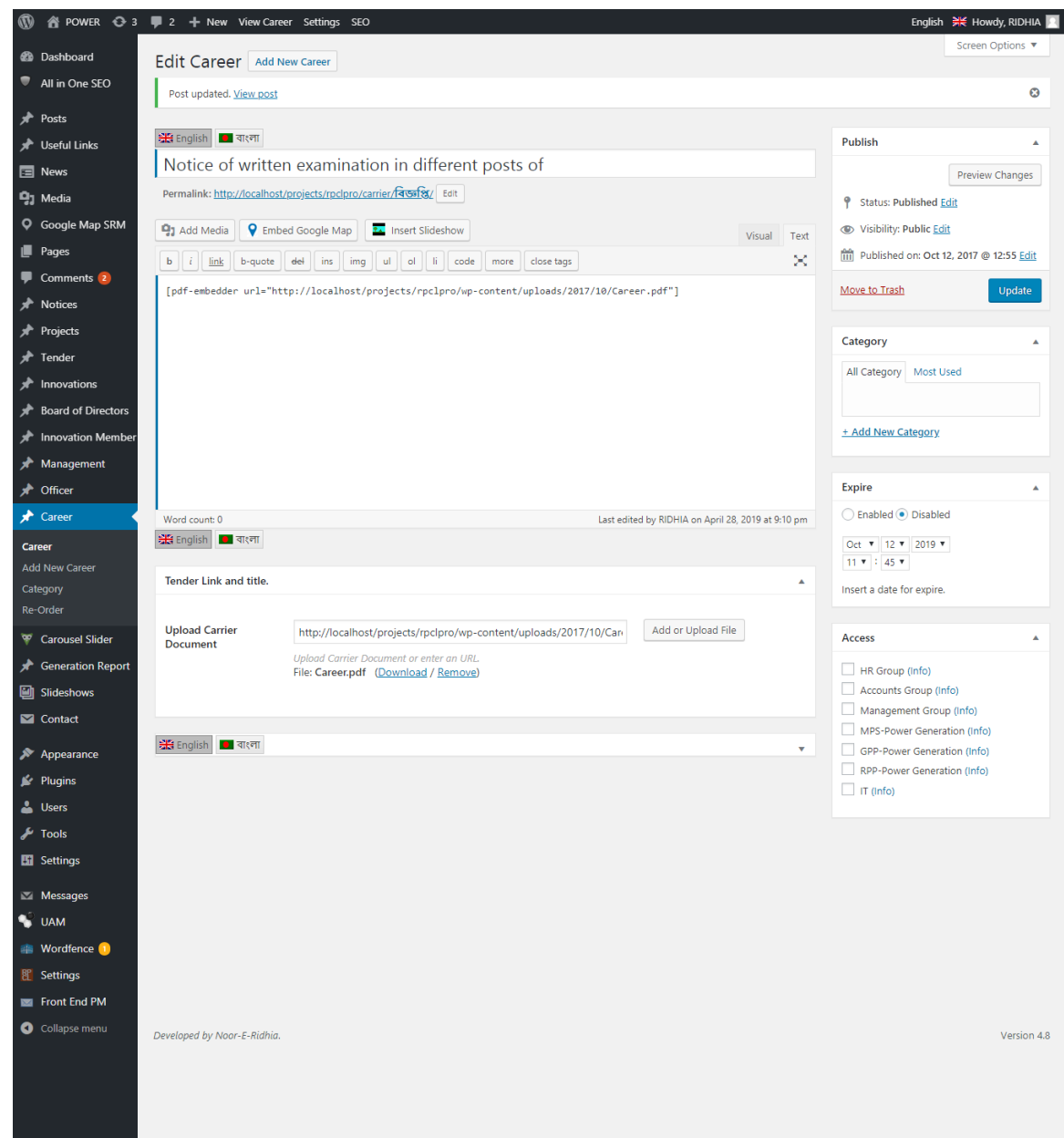


Figure 29 : Career Edit in Admin Panel

4.21 Complain Form

By this form anyone can send complain to authority. The authority will take necessary action by the mail generated from this website.

The screenshot displays the 'COMPLAIN' form on the Power Company Limited website. The header includes the company logo, name in Bengali and English, language options (English, বাংলা), a search bar, and a navigation menu with links: Home, About Us, Sustainability, Procurement, Career, Help & Contact, and Notice. The breadcrumb trail shows 'Home > Complain'. The form itself is titled 'COMPLAIN' and contains four input fields: 'Your Name (*)', 'Your Email (*)', 'Your Phone(*)', and 'Your Complain (*)'. A 'SEND' button is located at the bottom of the form. Below the form, there are three buttons: 'COMPLAIN', 'SUGGESTION', and 'INNOVATION'. The footer section, titled 'Join Us On', features social media icons for Facebook, Google+, LinkedIn, and YouTube, along with the copyright notice '©Power Company Limited.'.

POWER COMPANY LIMITED
পাওয়ার কোম্পানী লিমিটেড
POWER COMPANY LIMITED

English বাংলা

Search

Home About Us Sustainability Procurement Career Help & Contact Notice

Home > Complain

COMPLAIN

Your Name (*)

Your Email (*)

Your Phone(*)

Your Complain (*)

SEND

COMPLAIN SUGGESTION INNOVATION

Join Us On

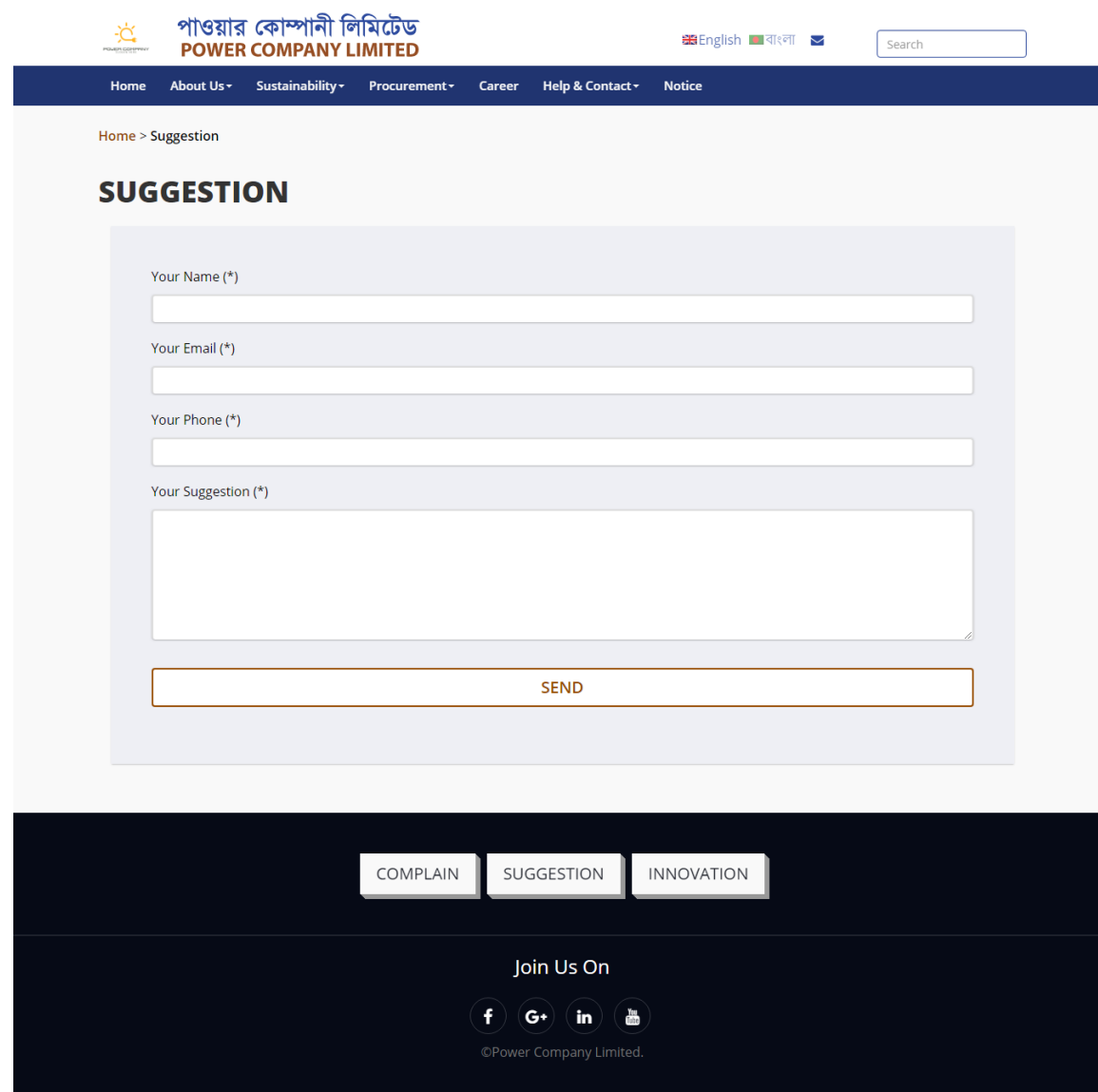
f G+ in

©Power Company Limited.

Figure 30 : Complain Form

4.22 Suggestion Form

By this form anyone can send suggestion to authority. The authority will take necessary action by the mail generated from this website.

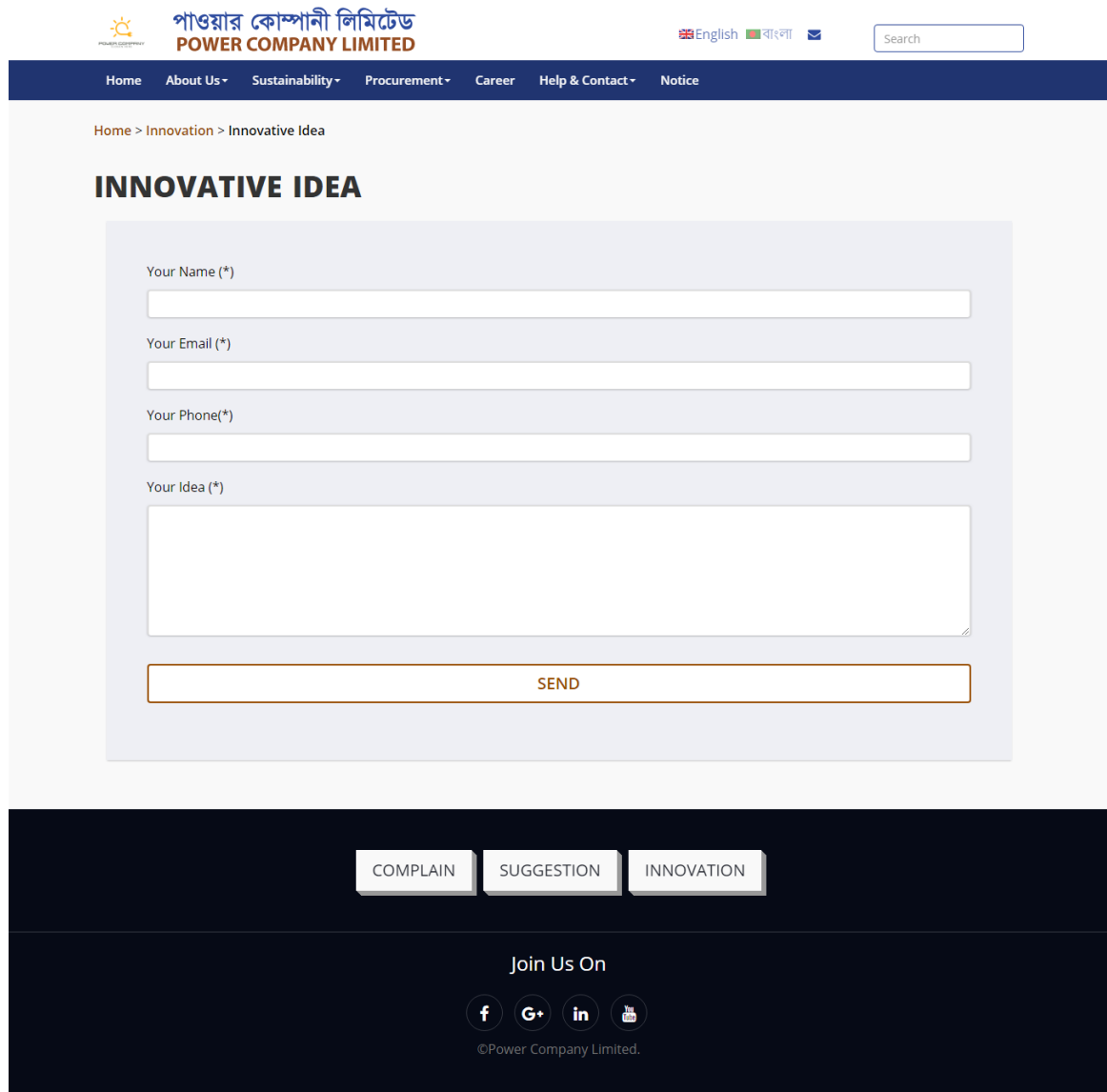


The screenshot displays the 'SUGGESTION' form on the Power Company Limited website. The header includes the company logo, name in Bengali and English, language options (English/Bangla), and a search bar. The navigation menu lists: Home, About Us, Sustainability, Procurement, Career, Help & Contact, and Notice. The breadcrumb trail shows 'Home > Suggestion'. The form itself is titled 'SUGGESTION' and contains four input fields: 'Your Name (*)', 'Your Email (*)', 'Your Phone (*)', and 'Your Suggestion (*)'. A 'SEND' button is located at the bottom of the form. Below the form, there are three buttons: 'COMPLAIN', 'SUGGESTION', and 'INNOVATION'. The footer section, titled 'Join Us On', features social media icons for Facebook, Google+, LinkedIn, and YouTube, followed by the copyright notice '©Power Company Limited.'.

Figure 31 : Suggestion Form

4.23 Innovation Form

By this form anyone can send innovation idea to authority. The authority will take necessary action by the mail generated from this website.



The image shows a web page for Power Company Limited. At the top, there is a header with the company logo, name in Bengali and English, language options (English, বাংলা), and a search bar. Below the header is a navigation menu with links: Home, About Us, Sustainability, Procurement, Career, Help & Contact, and Notice. The main content area is titled "INNOVATIVE IDEA" and contains a form with the following fields: "Your Name (*)", "Your Email (*)", "Your Phone(*)", and "Your Idea (*)". A "SEND" button is located at the bottom of the form. Below the form, there are three buttons: "COMPLAIN", "SUGGESTION", and "INNOVATION". At the bottom of the page, there is a footer with the text "Join Us On" and social media icons for Facebook, Google+, LinkedIn, and YouTube. The footer also includes the copyright notice "©Power Company Limited."

Figure 32 : Innovation Form

4.24 User Management

Here is the user list in the project. User access and role management is done. Group of users of same role will not be allowed to access any other section that is permitted for other group.

The screenshot displays the 'Users' management page. The sidebar on the left lists various dashboard sections. The main content area shows a table of users with the following data:

Username	Name	Email	Role	Posts	UAM User Groups
Account-Admin	Account Admin	aa@gmail.com	Editor	0	Accounts Group
gpp-admin	GPP Admin	gpp@gmail.com	Editor	0	GPP-Power Generation
HR-Admin	HR Admin	hr@gmail.com	Editor	0	HR Group
ictrpcl	RPCL	ict@rpcl.org.bd	Editor	0	none
management-admin	Management Admin	ma@gmail.com	Editor	0	Management Group
procurement-admin	Procurement Admin	procurement@rpcl.org.bd	Editor	0	none
rpp-admin	RPP Admin	rpp@gmail.com	Editor, Author	0	RPP-Power Generation
sarowar	Sarowar Zahan	sarowariu@gmail.com	Editor	0	IT

Below the table, there are buttons for 'Bulk Actions', 'Apply', 'Change role to...', 'Change', and 'Grant Roles'. The footer of the page indicates 'Developed by Noor-E-Ridhia' and 'Version 4.8'.

Figure 33 : User Management

Chapter 5

Conclusion

This project is the result of idea of the for a website power generation companies. It is a very helpful website. Tracking the hour basis power generation report will be easier. Publishing NEWS, Tender and announcement of Notice will easier now. Users will easily get the Notice and news. In future, I would like to add internal messaging system so that they can easily contact with each other through this system. Yearly report calculation and senior management reports will be built in future. For preventing hacking I will work for security issues.

References

1. Summit Power International Limited 2018, Summit Meghnaghat Power Company Limited , <<https://summitpowerinternational.com/summit-meghnaghat-power-company-limited>>
2. Summit Power International Limited 2018, Vacancy Announcement, <<https://summitpowerinternational.com/career-opportunities>>
3. Rural Power Company Limited 2019, Tender, <http://www.rpcl.gov.bd/site/view/tenders_type/%E0%A6%B8%E0%A6%BE%E0%A6%A7%E0%A6%BE%E0%A6%B0%E0%A6%A8%20%E0%A6%A6%E0%A6%B0%E0%A6%AA%E0%A6%A4%E0%A7%8D%E0%A6%B0/->
4. Rural Power Company Limited 2019, Generation report, <<http://www.rpcl.gov.bd/site/page/7748efbf-17be-492f-81b3-01276bc9d6e7/%E0%A6%AE%E0%A7%9F%E0%A6%AE%E0%A6%A8%E0%A6%B8%E0%A6%BF%E0%A6%82%E0%A6%B9-%E0%A6%AA%E0%A6%BE%E0%A6%93%E0%A7%9F%E0%A6%BE%E0%A6%B0-%E0%A6%B8%E0%A7%8D%E0%A6%9F%E0%A7%87%E0%A6%B6%E0%A6%A8>>

Appendix A