



Internship Report

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Autumn, 2020

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Supervisor's Designation

Lecturer, Department of Computer Science & Engineering,

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Dissertation submitted in partial fulfillment for the degree of Bachelor of Science
in Computer Science

Department of Computer Science & Engineering

Independent University, Bangladesh

Attestation

This report entitled

Frontend Developer

By

Taiammum Junayed

Has been approved by

The Department of Computer Science and Engineering

Independent University, Bangladesh (IUB)

Supervisor: **Md. Fahad Monir**

The final copy of this report has been examined by the signatory and I find that both the contents and the form meet acceptable presentation standards of scholarly work in the above mentioned discipline.

Signature

Date

Acknowledgement

First and foremost, I would like to thank almighty Allah for giving me the endurance and the ability to work hard. It was my privilege to do my internship at Debug BD. I would like to express gratitude all the members and stuff working at the company who have welcomed a newcomers like me to the company with such warmth. Thank you for making my internship such a memorable experience.

I express my deep gratefulness to my supervisor Mr. Md. Fahad Monir, Lecturer, Department of Computer Science & Engineering, Independent University, Bangladesh, for his invaluable instructions, continuous guidance, constructive criticism and thoughtful advice during pursuing this internship and preparation of this report.

Last but not least, a special thanks to my project leader, Mohammad Tanzilur Rahman of Debug BD for teaching and guiding me through difficult times with utmost patience and helping me with the technical fragments of my internship. Thank you very much.

Letter of Transmittal

12th January 2021

Mr. Md. Fahad Monir

Lecturer, Department of Computer Science and Engineering,

Independent University, Bangladesh

Subject: Letter of Submission of Internship Report, Summer 2021.

Dear Sir,

This letter is written to kindly inform you that I, Taiaammum Junayed, have completed my internship program and its report. The Internship was conducted from 10th Nov to 10th Jan 2021.

I completed my Internship with Debug BD as a Frontend Web Developer.

The following report is based on my experience and the work I did in the development sector of the company. I was assigned to work as a junior Frontend Web Developer. Since, I had 1 year of experience in web development, I have tried my best to learn more and contribute to the project I was assigned in.

I hope that you will find this report up to your mark.

Thank you.

Sincerely yours,

Taiaammum Junayed.

Evaluation Committee

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..... Supervisor

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..... Internal Examiner

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..... External Examiner

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..... Convener

Abstract

My internship was as a Frontend web developer of Debug BD. I was initially tasked to learn how to make HTML responsive template using CSS and Bootstrap.

As a beginner while learning html, css and bootstrap, I had to make a few templates from scratch for practice purposes. I was also expected to learn wordpress in the meantime.

Later I developed two websites for the company using wordpress, one is for a client company named Exelond Bangladesh. Which is a solar energy installation company and the other one was for the game Debug BD released recently named Teamplan.

Since the websites were made with wordpress I had to learn how to use wordpress and its plugins, also how a CMS works.

My final assignment was to create the website of Exelon Bangladesh ltd and the main topic of this report is about the creation of the Exelon Bangladesh ltd website. This website is to show all the information about the company Exelon Bangladesh ltd, So it was a portfolio website of Exelon Bangladesh ltd describing what services they offer and their past and recent achievements.

While working at Debug BD, I was fortunate enough to be introduced with technologies such as HTML, CSS, Javascript, Bootstrap and Wordpress.

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Chapter 1

Introduction to the company and my works

1.1 Overview/Background of the Work

Debug BD, is responsible for running and maintaining various websites whilst also designing and developing new websites, web applications, mobile applications and games.

Debug BD has very experienced and skilled backend developers. As they were working on different projects, I was instructed to create the website with wordpress alone. I was getting the media files from their graphic designer and the contents from the project manager of Exelon Bangladesh Ltd. I was instructed to fill the website and other templates with dummy texts at the beginning while building them. As I was the only developer working on the creation of the website of Exelon Bangladesh Ltd, this was really time consuming for me to learn and create at the same time.

After creating the website of Exelon Bangladesh, the client provided all the contents. I had to replace all the dummy contents with the real contents and deliver the website.

1.2 Objectives

- **Cleaning the Cpanel:** They had an existing website and my job was to delete the existing website and create a new one. I began with deleting the previous website and its database from the CPanel.
- **Installation of Wordpress:** Installing wordpress is actually a very easy task. On the Cpanel there was an option to install the wordpress. I installed wordpress with a new username and password which is required to login to the wordpress dashboard.
- **Choosing The Perfect Theme:** This was very time consuming, as I had to choose a wordpress theme for the website that fits their all requirements. I began with searching the keyword Solar Energy keyword on themeforest. I had to show them 4 themes that I selected for the website. And Finally the theme IRECCO was chosen for the website.
- **Installing Necessary plugins:** Wordpress uses plugins for designing and functionality of the website. Wordpress also has plugins to optimize a website so it loads faster and stays responsive in all devices. I used the most essential plugins that were needed to create the website.
- **Designing Pages:** Wordpress theme allows to import dummy content but still I had to design the pages with elementor page builder. If someone says its only drag and drop then they are wrong. Because when an element has been used on the page with the page builder one needs to customize its alignment and order and also style it to fit the client's needs and vision.
- **Placing Contents:** The website was filled with dummy contents at the beginning but later when the structure of the pages was ready I had take the contents from the client's end and place them on the website.
- **Optimization:** The website was loading a bit slower than expected. It was because the sizes of media files which need to be resized. I used plugins to resize them automatically and minify the codes so the website loads faster in the browser and stays responsive in all

devices.

- **Security Update:** Wordpress is the number one CMS in the world but still a wordpress website is very easy to get hacked by hackers, if the security is not hardened enough. I have used a plugin for harden the security of the website. It is called Sucuri Security.

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1.3 Scopes of work

Features that will be available after the development of the website are listed below:

1. Admin Dashboard for managing wordpress which includes adding, removing, and modifying contents.
2. Admin Dashboard for managing team member list and information.
3. Dashboard for managing editing, adding, and removing pages.
4. Blog option so they can add new blogs of their website, which helps to rank better on google.
5. Portfolio plugin so they can add a new team member or edit the existing team member's information from the backend of the website which is in the dashboard.

About Debug BD

Company profile



Debug BD is a strictly quality-driven Software Development & Support, System Integration and related IT Services specialist with major domain focus on mobile application and game development. Debug BD was established in August, 2014, with a vision to develop various mobile applications and games to take Bangladesh in the global mobile application and game development arena. With a unique combination of visionary leadership, experienced resources, intelligent processes and compatible infrastructure, Debug BD is committed to identify and recognize the needs of actual users that can be served through mobile applications in the public and private sectors all over Bangladesh.

Past accomplishments of the company include:

APPS & GAMES:

- EasyCal
- Tota Fantasy
- Feed Fuzzy
- Twenty9
- Save+
- T-Rex FairyLand
- Mauka
- Ramadan Times BD
- My Zakat

WEBSITES:

- GDS International
- Shop4kidz BD
- Bharabari
- Furnitex
- Diamond Studios

Details of product lines and services

Debug BD have produced many successful games & apps over the span of seven years and collaborated with other game development firms in Bangladesh. Recently they are expanding into new territory offering web, android applications and IT solutions such as website development and database management to various companies. Details of some of their popular games are given below.



Figure 1.1 : Easy Cal

Easy to use calculator that supports multiple languages. Like English, Bangla and Hindi. **Features:**

1. User friendly UI.
2. Any calculation done in any language is automatically converted into the current user's language.
3. Step by step solution is also provided.



Figure 1.2 : Tota Fantasy



Figure 1.3 : Feed Fuzzy

Fuzzy the cuddly character of this game. He is always hungry & you have to feed him as much as you can! But be careful!! You only have to catch the food, not the bombs. Download and get playing now!



Figure 1.4 : Twenty9

This exciting new game is absolutely FREE to play & enjoy.

More updates & new additions are coming to the game very soon!

32 cards from a standard 52-card pack are used for play. The cards in every suit rank from high to low: J-9-A-10-K-Q-8-7. The aim of the game is to win tricks containing valuable cards. The values of the cards are:

- Jacks 3 points each
- Nines 2 points each
- Aces 1 point each
- Tens 1 point each
- Other cards (K, Q, 8, 7) no point

Company Contact?

Chapter 2

Literature Review

2.1 Introduction

The most important tool that someone can have to market their work is a portfolio website. With a portfolio website, potential clients from around the world can review their work, get to know about the company, and understand the services they offer and contact the company directly for work.

There are three main goals to this successful portfolio website. First, it should help present their work in the best possible way while marketing explaining their services in a clear manner. Second, the website should enable them to get to know their customers and site visitors. And, third, it should act as a hub for all of their online and offline marketing activities.

2.2 Benefits of having a portfolio website

2.2.1 PROFESSIONAL WAY TO SHOWCASE YOUR WORK:

Having a website about the company and experience is a polished way to share their expertise with others. Websites can be more creative and innovative than traditional portfolios and are able to share with anyone in the world.

2.2.2 IT'S A GREAT FIRST IMPRESSION FOR EMPLOYERS:

If a visitor sees the company website link, they'll likely click on it to see everything about the company. By visiting the website the visitor can see what services the company offers, how organize the website is and the past works of the company, also articles published by the company and it will be a killer first impression for the company in the market worldwide.

2.2.3 INCREASES THE VISIBILITY AND ONLINE PRESENCE

When someone Googles the company name, then the company website will be one of the first search results that pops up.

Chapter 3

Project Management & Financing

3.1 Work Breakdown Structure

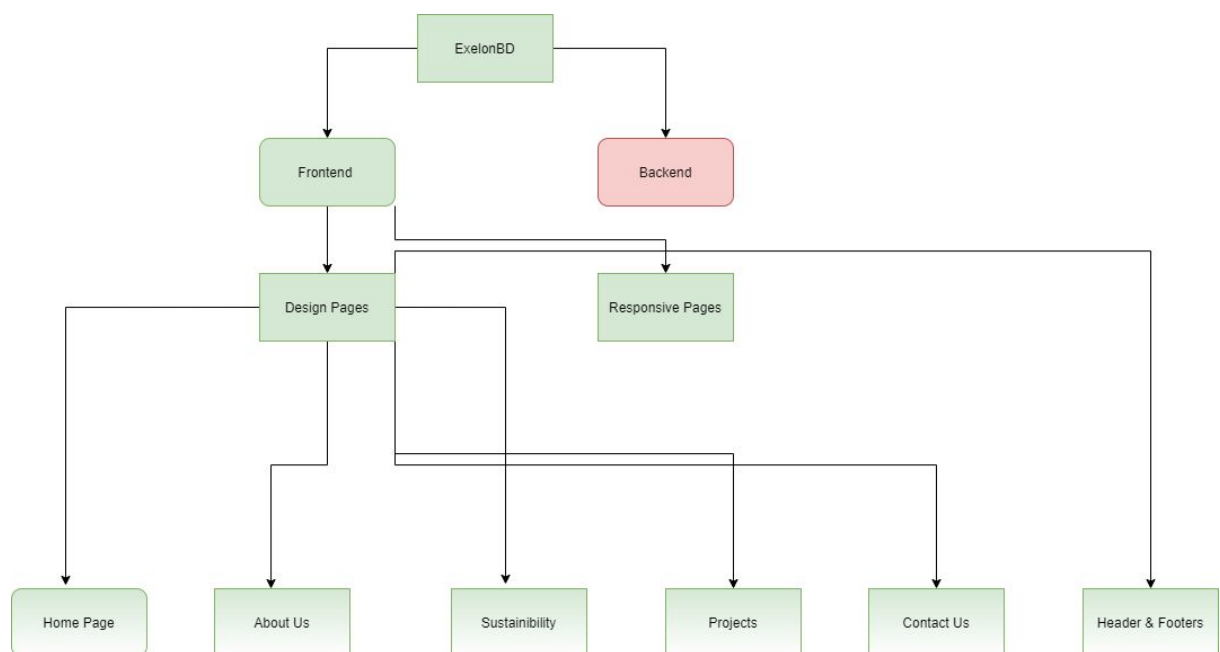


Figure 3.1 : WBS

The WBS shows the individual work that has been done in the project ExelonBD. All the pages for the website had to be made along with the nested pages inside the main pages that are shown in the above diagram. All the pages are responsive for any devices available.

3.2 Process/Activity wise Time Distribution

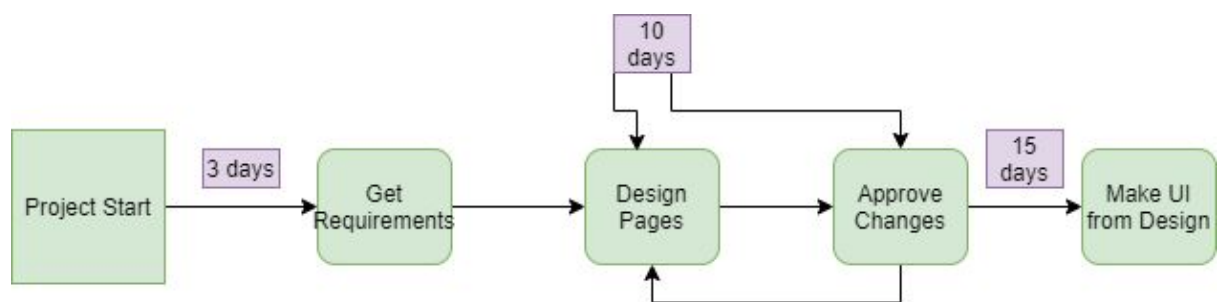


Figure 3.2 : Time Distribution

3.3 Gantt Chart

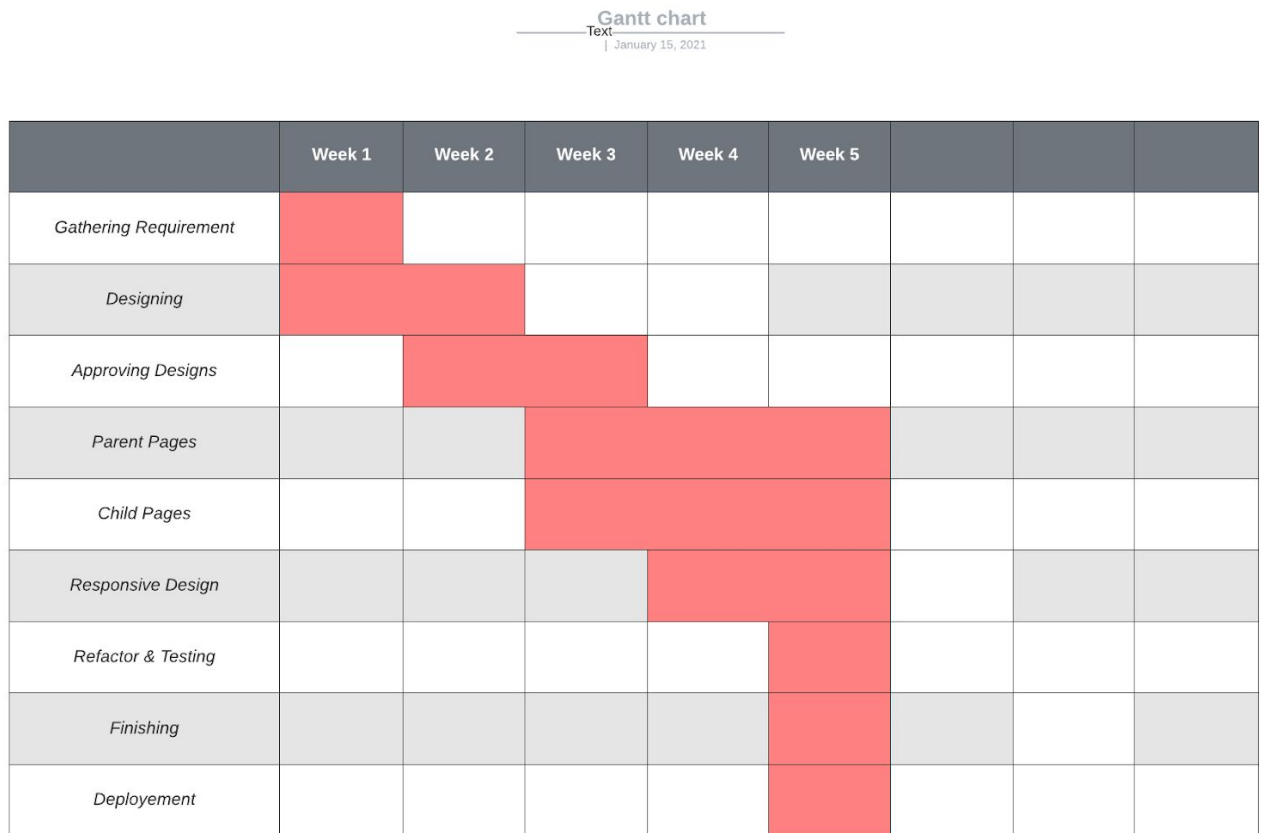


Figure 3.3 : Gantt Chart

3.4 Process/Activity wise Resource Allocation

SL	process	Resources	Duration	Cost
1	Requirements	Project Manager	3 days	1500
2	Configure Hosting	Developer	2 days	1500
3	Demo Layout	Developer	2 days	1000
4	Database Creation	Developer	1 day	1000

5	Homepage	Developer	17 days	2000
6	About Us Page	Developer	7 days	2000
7	Our Journey Page	Developer	2 days	2000
8	Leadership Page	Developer	2 days	2000
9	Team Page	Developer	2 days	2000
10	Services Pages	Developer	3 days	5000
11	Sustainability Pages	Developer	3 days	4000
12	Project Pages	Developer	7 days	12000
13	Contact Us Page	Developer	1 day	2000
14	Header & Footer	Developer	1 day	1000
15	Testing All Pages	Developer	3 days	2000
16	Testing Security	Developer	1 day	2000
17	Testing Dashboard	Developer	3 days	2000
18	Graphic Designer	Developer	10 days	5000

3.5 Estimated Costing

Resources	Duration	Total cost
Project Manager	10 days	10000
Developer	35 days	35000
Graphic Designer	5 days	5000
Utility	40 days	1600

Total cost: 51600 Taka

Chapter 4

Methodology

Exelon BD is a business portfolio website which is made with wordpress. Through this website the company shows their recent ongoing works and past works. Their team information. The companies they have worked with and also they post articles about the company. The website has HTML, CSS, Bootstrap and javascript in the frontend. Php is used on the backend.

4.1 Software Stacks

4.1.1 PHP

PHP is a programming and scripting language to create dynamic interactive websites. WordPress is written using PHP as the scripting language. Just like WordPress, PHP is also an Open Source. PHP is a server side programming language. When a user requests a web page that contains PHP code, the code is processed by the PHP module installed on that web server. The PHP pre-processor then generates HTML output to be displayed on the user's browser screen.

4.1.2 JavaScript

JavaScript is a scripting language that empowers you to make powerfully dynamically substance, control multimedia and sound, animate pictures, and a great deal.[5]

4.1.3 Html and CSS

HTML which stands for Hypertext Markup Language and CSS, Cascading Style Sheets, are two of the center innovations for building Web pages. HTML gives the structure of the page, CSS the (visual and aural) design, for a variety of devices.[6]

4.1.4 Bootstrap

Bootstrap is a free and open-source CSS framework directed at responsive, mobile-first front-end web development. It contains CSS- and (optionally) JavaScript-based design templates for typography, forms, buttons, navigation, and other interface components. Bootstrap is among the most starred projects on GitHub, with more than 142,000 stars, behind freeCodeCamp (almost 312,000 stars) and marginally behind Vue.js framework.

4.2 Software Management Methodology

A content management system or CMS is a software that is used to build websites and create content to be published on the internet. In the early days of the web, people needed to know HTML to be able to code a website and publish your content online. That used to be hard for people who are not developers, but CMS has made it much easier. Instead of writing the website codes, people can edit their contents of the website and upload new contents. That is the very reason why Exelon BD wanted their website to be made with wordpress. Exelon BD consists of various phases and as the project requires all the functionality of a modern UI and UX and as the continuous feedback from the client is needed to make sure the requirements are being met so Agile Scrum Methodology is being used for the project management.

Chapter 5

Body of the Project

ExelonBD is a business portfolio website where they are showing their recent and past projects, their journey so far, information about their team, the services they offer, and a contact page to contact them. During the pandemic an online presence was the most needed thing for companies as people were working from home. Exelon BD has all the features and design layout of a modern, clean business portfolio website. I was assigned to make the website with a cms and the number 1 cms in the world wordpress was used to make the website. Wordpress uses php on it's backend and html, css, bootstrap, javascript on it's front end.

5.1 Work Description

These are the steps I followed:

- **Delete the previous website and it's files:** They had an existing website so I had to delete the old website and it's database from the Cpanel. The public_html folder was empty and there I was going to install a new wordpress for creating the website.
- **Installing Wordpress:** Installing wordpress is actually a very easy

task. On the Cpanel there was an option to install the wordpress. I installed wordpress with a new username and password which is required to login to the wordpress dashboard. The steps I followed to install WordPress on Host control panel:

- Access Host control panel.
 - Locate Auto Installer and open it.
 - Enter WordPress in the search field and click on its icon.
 - I filled in website details:
 - URL – The URL where WordPress should be installed.
 - Language – Choose WordPress language English.
 - Administrator Username – My WordPress admin username.
 - Administrator Password – The password given by me to access the WordPress admin area.
 - Administrator Email – I used my email address.
 - Website Title – ExelonBD.
 - Website Tagline – No Tagline was used.
 - Finally pressing the Install wordpress button.
-
- **Installing Theme:** The theme IRECCO was chosen for the website. From the wordpress dashboard I went to appearance and from appearance I went in the theme option. There I uploaded the theme and activated it. After the activation I deleted all the other existing default themes. Then I uploaded the child theme of IRECCO. The child theme is being used for the purpose of if new updates come of the wordpress version while updating to that version the child theme will stay the same and the website layouts won't break down. So basically the child theme stores the setting of the parent theme so after the update the parent theme gets the old settings back and the layout stays intact.

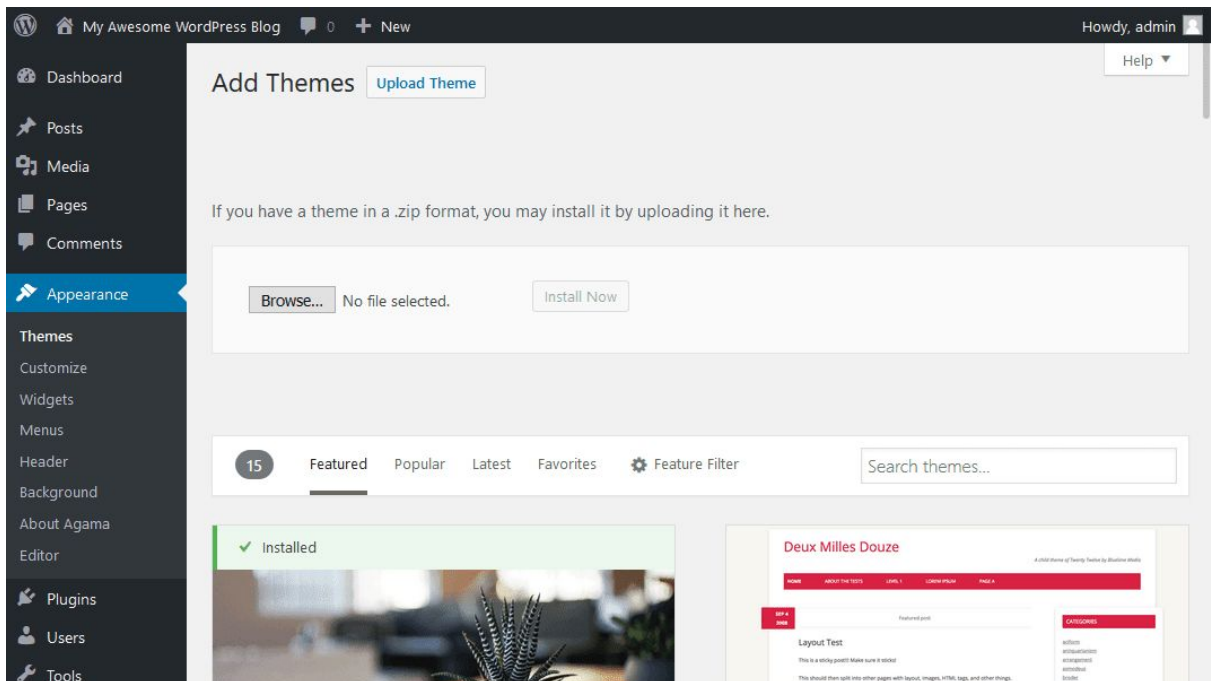


Figure 5.1 : Theme Upload

The Theme I used is:

iRecco - Wind & Solar Energy WordPress Theme

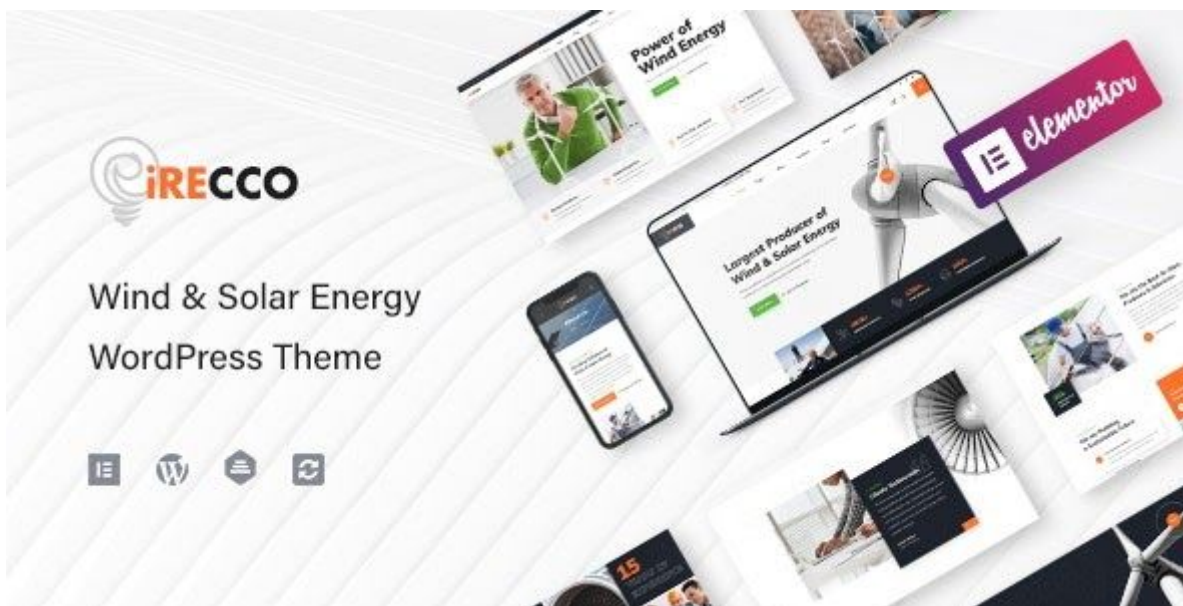


Figure 5.2 : IRECCO Theme

**Compatible
Browsers**

Firefox, Safari, Opera, Chrome, Edge

Compatible With	Elementor, WooCommerce 3.8.x
Software Version	WordPress 5.5.x, WordPress 5.4.x, WordPress 5.3.x, WordPress 5.2.x, WordPress 5.1.x, WordPress 5.0.x
ThemeForest Files Included	PHP Files, CSS Files, JS Files
Columns	4+

- **Installing and Configuring plugins:** Wordpress uses plugins for designing and functionality of the website. Wordpress also has plugins to optimize a website so it loads faster and stays responsive in all devices. I used the most essential plugins that were needed to create the website. Such as

- **Elementor Page Builder**

Elementor Website Builder comes with an exclusive toolset, that lets you create a truly responsive website in a whole new and visual way. From different font size, padding and margin per device, to reverse column ordering, this is the most powerful mobile site builder for creating perfect responsive websites. **40+** free widgets are available in elementor.

- **Contact Form 7**

Contact Form 7 can manage multiple **contact** forms, plus you can customize the **form** and the mail contents flexibly with simple markup. The **form** supports Ajax-powered submitting, CAPTCHA, Akismet spam filtering and so on.

- W3Total Cache

W3 Total Cache is the fastest and most complete WordPress performance optimization plugin. Trusted by many popular sites including: AT&T, Mashable, Smashing Magazine, WPBeginner, and millions others. W3 Total Cache improves the user experience of your site by improving your server performance, caching every aspect of your site, reducing the download times and providing transparent content delivery network (CDN) integration.

- Revolution Slider

Slider Revolution is a WordPress plugin that allows you to create responsive sliders with many animation effects, text, image and video layers, and many other features. The textual content of the slides' layers needs to be translated in multilingual sites. In this tutorial, we teach you how to do this with WPML.

- Elementor Header and Footer Builder

The plugin offers inbuilt widgets that help to create header/footer layouts.

- iRecco Core

theme core plugin (required for using all custom modules, post-types, theme options and more other)

- Yoast SEO.

Probably the most popular SEO plugin for WordPress. It will help you improve the search engine optimization. From meta tags to writing suggestions – Yoast SEO plugin has it all.

- Wordfence Security.

This plugin will keep your WordPress safe from hackers and malware. It has firewall and malware scanner modules which are super useful.

- Lazy Load

Lazy Load displays images and/or iframes on a page only when they are visible to the user. This reduces the number of HTTP requests mechanism and improves the loading time.

- EWWW Image Optimizer

For optimizing the images and media files EWWW Image Optimizer is the best plugin.

- WP Super Minify

To minify the css, html and javascript codes of the entire website I have used WP Super Minify.

I uploaded the Essential WordPress Plugins from the theme folder.

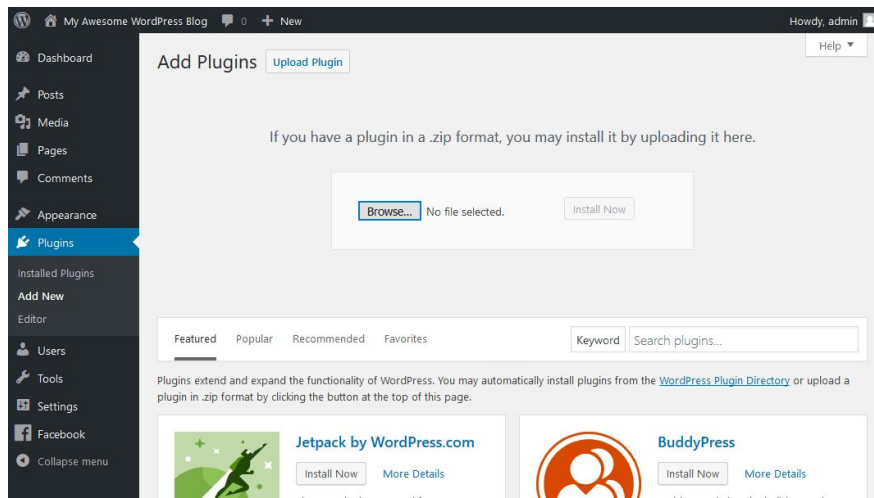


Figure 5.3 : Plugin Upload

- **Designing Pages:** Wordpress theme allows to import dummy content but still I had to design the pages with elementor page builder. If someone says it's only drag and drop then they are wrong. Because when an element has been used on the page with the page builder one needs to customize it's alignment and order and also style it to fit the client's needs and vision.
- **Placing Contents:** The website was filled with dummy contents at the beginning but later when the structure of the pages was ready I had take the contents from the client's end and place them on the website.
- **Optimization:** The website was loading a bit slower than expected. It was because the sizes of media files which need to be resized. I used plugins to resize them automatically and minify the codes so the website loads faster in the browser and stays responsive in all devices.

For optimization I have done the listed things:

- **EWWW image optimizer for optimizing the images and media files.**

Image optimization is another crucial task that should be done in order to make your WordPress site fast. Using too large images. For example, a 500 x 500 dimension picture but the site resizes it to 100 x 100. As a result, the visitor's browser will have to download the larger

file first, scale it down and only then display it. The proper way would be to simply upload a 100 x 100 dimension picture so that the excessive task of scaling down the image would be avoided. The image would also take up less space that way, resulting in an overall boost of speed.

- **WP Super Minify to minify the css, html and javascript codes of the entire website.**
- **W3 Total Cache to delete all the cache of the website**
- **Enabling gzip compression for a WordPress website is a great way to increase speed and performance.**

In short, gzip compression works by finding similar strings in a text file and replacing it temporarily, resulting in a smaller file size. HTML and CSS files have a lot of repetitive text and spaces, making gzip compression very effective. On the whole, it can reduce the size of a WordPress page by up to 50-70%.

- **Using a Content Delivery NetworkImplementing a content delivery network (CDN for short) will speed up WordPress by caching content in multiple data centers around the world.**

After a visitor enters your site, the content will be delivered by the nearest datacenter available resulting in a better front-end experience. CDNs also work great with WordPress caching plugins and there are free solutions to get you started. For example, CloudFlare has a free plan which provides both benefits of a CDN while protecting your site from DDoS attacks. I used a free CDN of cloudflare.

- **Enabling Lazy Loading**

Generally, when a web page is opened, all the content is loaded instantly, which is called eager loading. Alternatively, it is possible to delay the initialization of some objects (such as images) until they are needed, which is called lazy loading. The most common practice is displaying images only when they are visible from the visitor's viewpoint or on the screen. So to take advantage of this technique I installed and enabled a plugin Lazy Load.

- **Security Update:** Wordpress is the number one CMS in the world but still a wordpress website is very easy to get hacked by hackers, if the security is not hardened enough. I have used a plugin for harden the security of the website. It is called Sucuri Security.

5.2 System Analysis

5.2.1 Market Research & Business Strategy

list of all of the competitors.

1. Energy System Company Ensystco
2. Solarland Bangladesh Co. Ltd.
3. Australia Bangladesh Solar Power Ltd
4. Solar Power & Electric Industries Limited
5. Engreen Limited
6. Symbior Solar Bangladesh
7. Global Renewable Energy Ltd
8. Bangladesh Solar & Renewable Energy Association
9. Enargion Bangladesh Ltd.

10. Solar EPC Development Ltd.

Exelon Bangladesh website has much better UX and UI than their competitors in the market. It's very easy to navigate through the whole website and find the information one is looking for.

Site Structure

The site structure of Exelon Bangladesh appeals to both website visitors and search engines. Wordpress is known as the best CMS for Search Engine Optimization. Yoast SEO was used to improve the site's SEO.

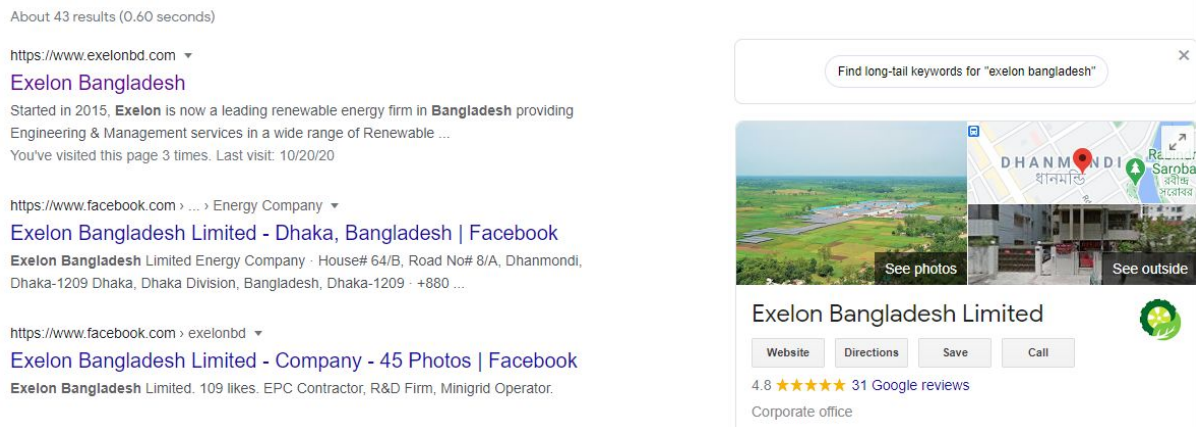


Figure 5.4 : Google Search

Data Capture & Marketing Funnel

There are so many different ways of growing a database of customers. However, although it's very much in vogue to grow a community on a social media site, unless one collects their own database of email addresses, they are not building long-term direct control over their marketing destiny.

When they grow their own email database what they are doing is reducing their reliance on other forms of internet marketing " it won't matter so much if someone search engine rankings slip in the future and they don't run the risk of being closed down by a third party operator.

Exelon Bangladesh uses MailChimp and Contact form 7 to collect emails.

Visitor Tracking

Google analytics plugin was used to track the visitors who visits the website. Admin can monitor, analyze, and measure visitor engagement for the site directly from the WordPress dashboard with Google Analytics plugin. With Google Analytics dashboard, admin can conveniently access Google Analytics reports in the same interface which they already use every day to write and manage the posts.

5.2.1 Feasibility Analysis

The feasibility study is the trial of the proposed framework in the light of its usefulness, meeting the client's prerequisites, compelling utilization of assets and of course, cost viability. These are arranged as specialized, operational, economic, schedule and social feasibility. The principle objective of the feasibility study is not to tackle the issue but to achieve the scope. During the time spent on feasibility study, the cost and advantages are assessed with more noteworthy precision to discover the Return on Investment (ROI). This additionally characterizes the assets expected to finish the point by point examination. The outcome is a feasibility report submitted to the administration. This might be acknowledged or acknowledged with adjustments or dismissed.

5.3 System Design

5.3.1 Rich Picture

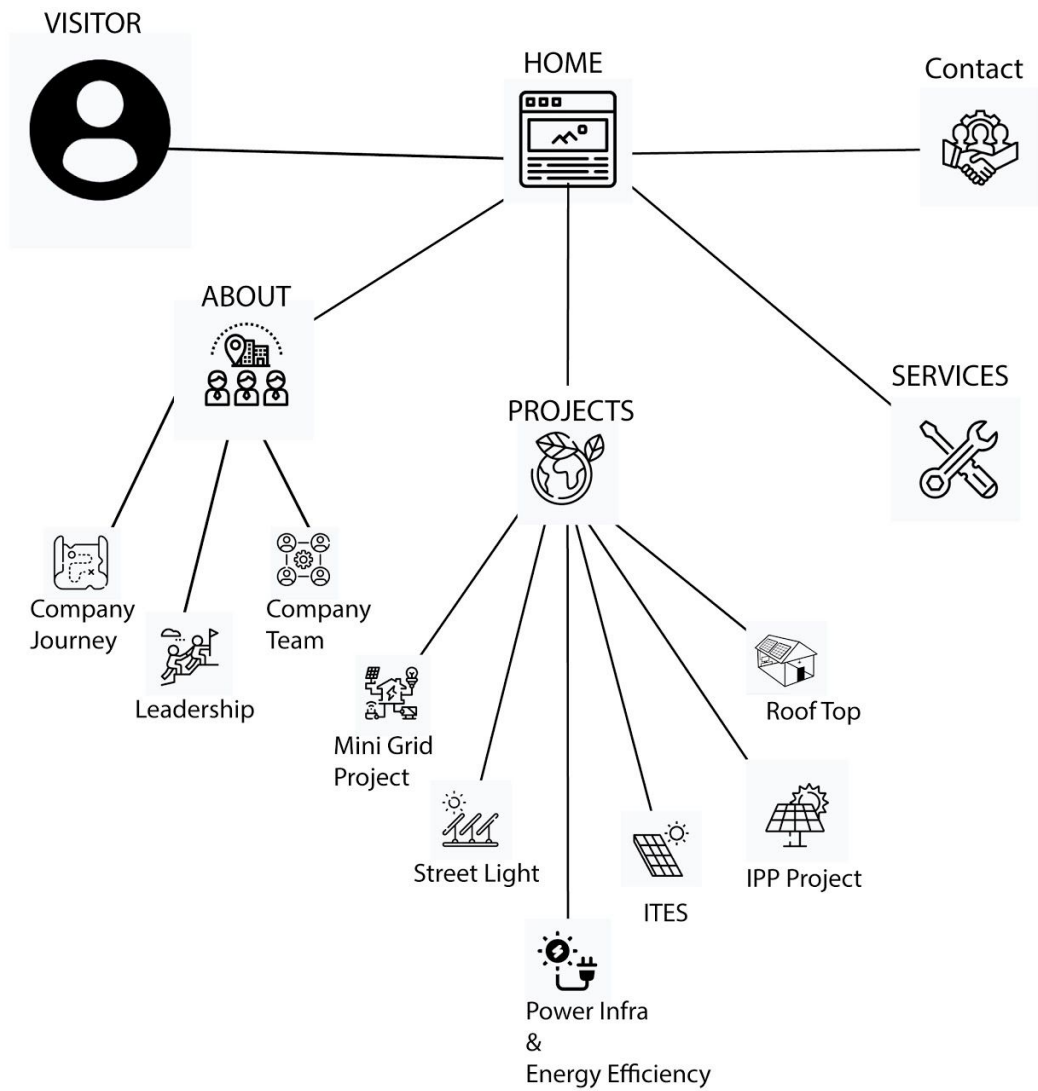


Figure 5.5 : Rich Picture for Exelon Bangladesh

5.3.2 UML Diagrams

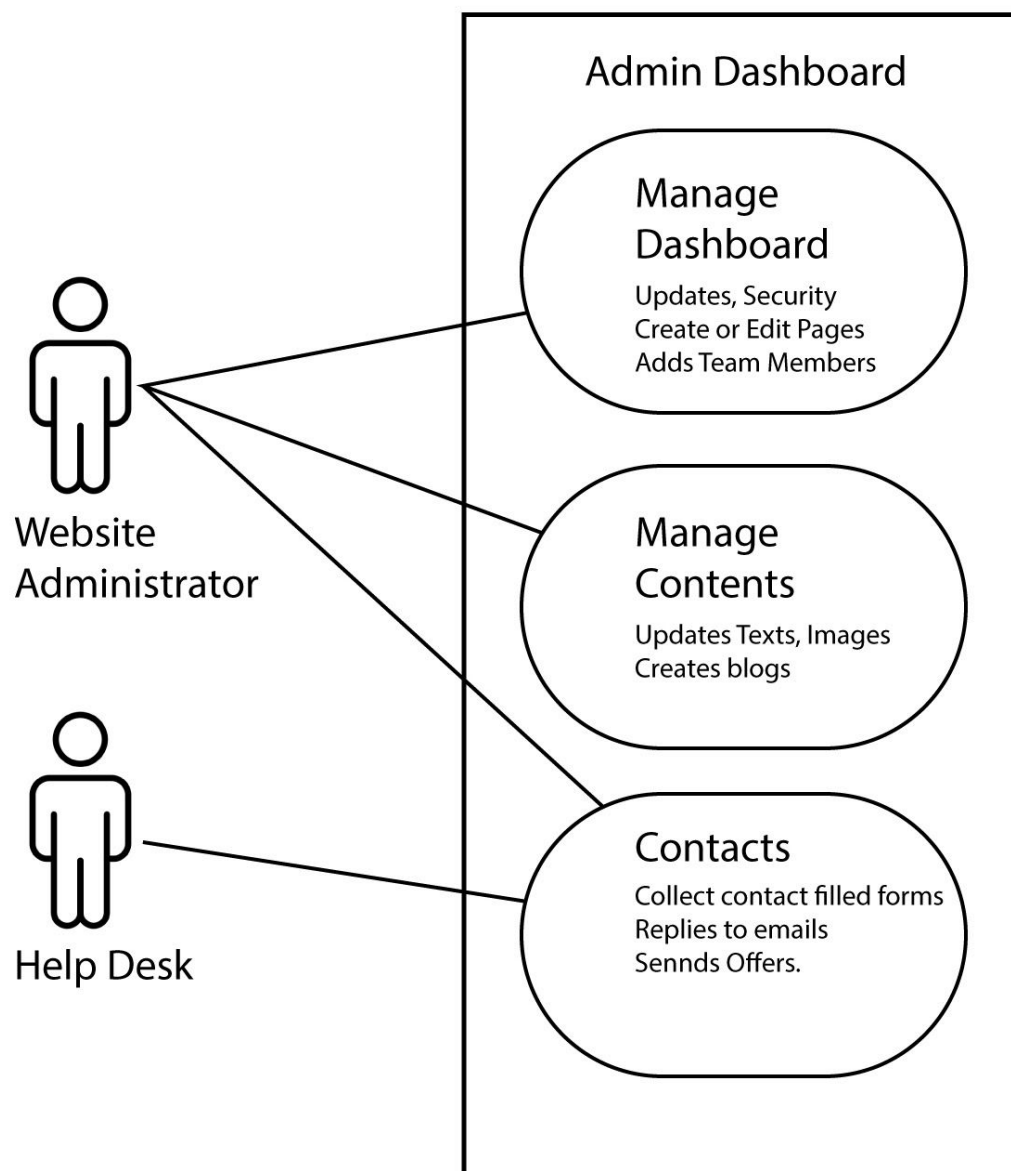


Figure 5.6 : UML Diagram

5.3.3 Functional and Non-Functional Requirements

Functional Requirements

1. Mobile friendliness
2. Relevant, useful content
3. Email newsletter tools

4. Social media integration

5. Contact Form integration

6. Blog Posting

Non-Functional Requirements

- Privacy – Exelon Bangladesh meets the basic requirements for GDPR
- Scalability and Performance – Exelon Bangladesh use a virtual server which can scale up when the traffic gets high
- Speed of Web Services – Exelon Bangladesh loads under 5 seconds.
- Documentation – Exelon Bangladesh has well documented format
- Quality – Exelon Bangladesh has a well written code which enforces all the good practice of coding standards
- Compatibility – Exelon Bangladesh is supported in any browser.

5.4 Product Features

5.4.1 Architecture

We utilized Client Server Architecture in Exelon Bangladesh. Client server architecture of a computer network in which numerous clients (remote processors) ask for and get administration from a centralized server (host computer). client's PC gives an interface to permit a computer client to demand administrations of the server and to show the website consequently.

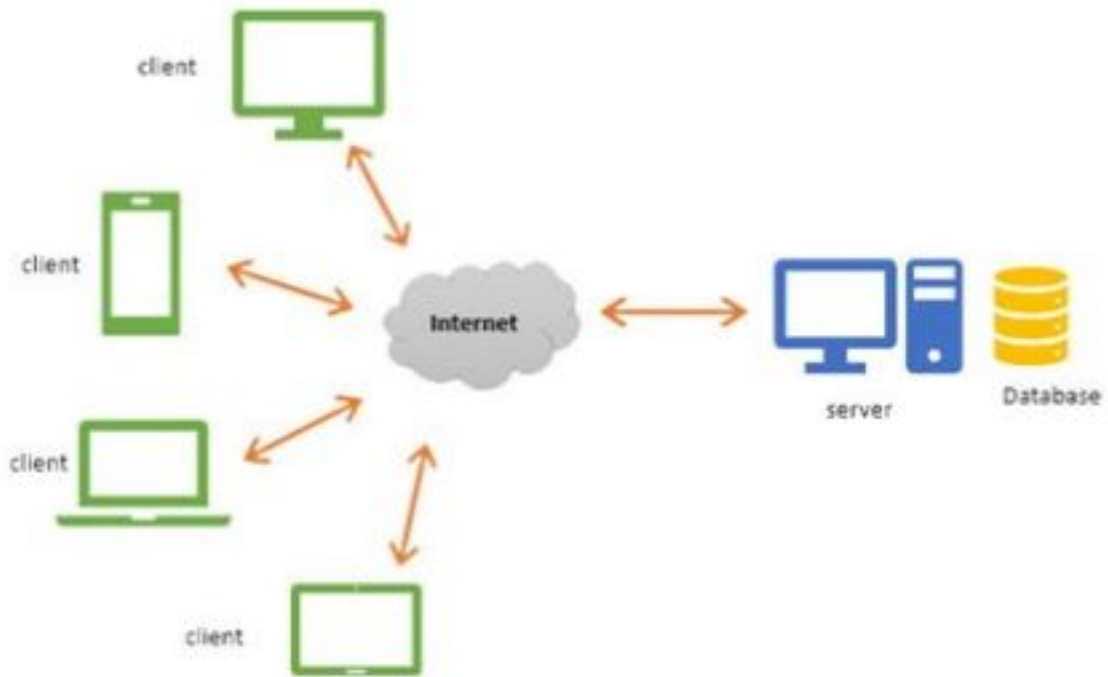


Figure 5.7: Architecture of Exelon Bangladesh

Chapter 6

Results & Analysis

The purpose of Exelon BD website is to show the journey of the company and their achievements and to find their potential customers. Their experience includes both utility-scale, centralized energy solar farms and distributed solutions across the country. Exelon has the capabilities to develop, construct, operate and optimize the outcome of solar projects utilizing photovoltaic (PV) technology. They provide

feasibility, detailed design and project management through to construction, finance, ownership, asset sale or continued energy generation. They provide an extensive and customized service for organizations which intend to embark upon a solar project of any scale. This ranges from utility/commercial to industrial customers. The role of Their company for these projects can be of advisory or managing the project. BENEFITS???

6.1 Test Case

1. Is the website responsive in all devices?
2. Is the contact form working properly?
3. Does the team carousel working properly and the images are in correct size?
4. Is the contact form working properly?
5. Do the projects are listed in correct order?

Chapter 7

Project as Engineering Problem Analysis

7.1 Building Blocks of Sustainable Web Design

According to the March 1, 2015 run of the HTTP Archive, the average web page is now over 2 megabytes (2008 kb, to be precise). Bloated websites lead to slow load times, frustrated users and wasted energy. Mightybytes has identified few key areas where sustainability principles can be applied to the process of creating websites that are speedy, user-friendly and energy-efficient.

7.1.1 FINDABILITY

The easier content is to find, the fewer pages a user has to load to locate information. This means fewer server requests are made and that unnecessary page elements — like photos and videos, which take up a lot of bandwidth — don't load, either. Exelon uses CDN(Content Delivery Network) which loads contents very easily. These small energy savings accumulate over time.

7.1.2 PERFORMANCE OPTIMIZATION

Sustainability and page speed go hand-in-hand. Since Exelon BD website runs more efficiently, it uses less processing power, which means that the site uses less energy and will have a lower carbon footprint. The customers expect to get the content they want instantaneously, and efficient pages load more quickly, reducing a site's bounce rate and keeping customers engaged and satisfied.

7.1.3 DESIGN & USER EXPERIENCE

Sustainable design is design that is efficient and accessible. Creating good experiences for both mobile and desktop users improves accessibility because it makes it easy for people to access the site no matter what hardware they have. Mobile-first web design also helps you avoid loading large assets designed for desktop machines, which improves your site's speed and energy efficiency. Exelon BD website is fully responsive. Exelon BD has the most modern and clean layout of 2021.

7.2 Social and Environmental Effects and Analysis

Every design decision is a decision made on behalf of our users. As the creators of designed experiences used by people all over the world, it is my responsibility to think carefully about not just how I do something at a technical level or what goals I am trying to achieve for myself or our clients or companies. With every decision, I

have the shared opportunity and responsibility to think about the ethics of web design, not just as a high flying ideal about doing no harm or doing the right thing, but as a fundamental part of our everyday process. Through the Exelon BD website people can have the hope of having green energy all over the country. The website is designed in a very friendly manner that anyone can navigate through the whole website very easily. Green energy can reduce pollution and make the world a better place to live in.

Chapter 8

Future Work & Conclusion

8.1 Future Works

Exelon Bangladesh was planning to have a live chat and video meeting with clients feature, so they can help people all over the country.

8.2 Conclusion

According to Internet Live Stats, 75% of websites are inactive**. A survey conducted by Internet company GoDaddy in 2015 reports that a number of small and medium business cannot see the point of having a website***. It seems an online presence has been reduced more into a peer-pressured trend than a real necessity. And with a lot of businesses drowning their Unique Selling Points in lookalike graphical user interface, forgetting to plan their digital strategy in line with their corporate goals, it is difficult to not agree.

The only way to have an active website is to have a website whose implementation digitally deploys the elements that help the business attain their strategic goals.

Exelon Bangladesh website speaks for them. Their branding and very user friendly User Experience makes their tasks of getting new customers easy and gives people a proper brief about their company and works.

I have given a detailed analysis of Exelon Bangladesh website in this report. I have gathered a lot of knowledge while working at DebugBD. Working on new things was initially hard. The work that I did on Exelon Bangladesh is intended to enhance my knowledge and shed some light on the web development Industry. While working at DebugBD I have learned a lot about web technologies but more importantly I have learned how an intensive research is being done to plan the execution of the whole project. As technologies are moving toward being remote and accessible from anywhere web technologies are expanding its horizons.

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