Evaluation

Contents

Effectiveness of the assets and content used

Logo

In terms of assets used in my overall website, there aren't very many. The logo represented within the proposal and design documents and on the website, itself was a DALL-E Generative AI creation which was then ran through remove.bg.

The original logo contains essentially the same colour palate as the website itself, partially due to me providing the AI with my proposed colour scheme. After getting the image and being quite happy with the first attempt all things considered, I turned to

remove.bg to get myself a transparent background version for application on the website.

In terms of a first mockup for the logo and purely in place during early development alongside the design time constraints I had no problem using this logo as a placeholder. IF/When the site was entering later development and progressing towards completion, I would certainly look to have a professionally made logo to replace this one. Given that this was created by a generative AI I am not entirely sure about the legalities of using its creations, especially in a business context where the logo will likely always be present. Overall, I would swap the logo regardless of legalities for something more professional and minimalist in line with current trends and patterns.

Filler Text / Lorem

In terms of filler text for my website I have used a LOT of lorem ipsum filler text. The best thing is that lorem ipsum is entirely royalty free and provided for use in this exact context among others. Lorem features heavily in my static parts of the codebase (like the dashboard information) in places where I was keen to mockup a full-page view without sitting and taking time to write actual information as the timeline, I was working on did not have such precious time for this.

I chose to use Lorem over things like asking Gen AI to generate relevant text about the company / user because at the end of the day the text is all meant to be dynamic at a later point in the development process where all appointments and usage statistics are dynamically displayed according to the logged in user. As such, creating a mockup of that information did not seem like an accurate assignment of my time.

How well I met my goals

Functional Requirements (FR)

1. Account Systems

a. Account Registration to allow the end user to receive a personalised dashboard containing appointment data and usage metrics.
b. Account Login System to allow the user to access the account they have just registered
c. Password updating system so that the end user can always change the password if in fear of compromise or has forgotten it.
d. Account Deletion/Termination allowing the user to delete their account and the associated metrics and appointments should they wish to exit the Rolsa Technologies market.

2. Metric Gathering

a. Have the Metrics of a household / specific item be available to the user at any time over any period not exceeding the period the user has been with the company to avoid misconception of “blank” data.
b. Be able to set usage limits on certain items of tech such as an EV charger or smart thermostat / heating solution to limit cost and consumption
c. Email / smart contacting solution to the user if the item with a limit on it is close to the limit and provide them with options to increase OR remove the limit they have set.

3. Ability to book Appointments

a. To be able to book appointments directly through the app for a variety of tasks
b. To be able to set notes at point of booking detailing your issue from the end user Point of View (POV)
c. Cancellation and rescheduling of appointments up to the date of the current appointment.

4. Admin Panel

a. Be able to see overall usage metrics in a geographical area
b. Be able to see usage metrics for one household or business facility
c. Be able to procure contact details for a client to contact them if necessary

1.a – I would define this Functional requirement as mostly met, I completely believe I have created a comprehensive registration system for a user to create an account. However, it is clear to me that I was quite overambitious to combine this with the full dashboard system inside of just one FR was a mistake and should really have been split down into two.

1.b – This FR is entirely met; a user can log into their account with little to no trouble with their email and password.

1.c – This FR is not met, it is a system I had intended to create inside version 3, however, due to time constraints I elected to push this FR back into a future version as a top-level priority. While the code behind updating a password is not particularly difficult but was not of high priority in such an early mock-up of the product.

1.d – Similarly to 1.c this FR just didn't make the cut for the versions I have developed thus far. Once again, I would like to implement this as soon as possible in version 4.

2.a, b, c, d – This entire set of FRs had no logical place in the system this far, they didn't cross my mind much during development and were incredibly ambitious given the time scale. These have all NOT been met.

3.a – This FR has been met completely. The user can book an appointment for an installation, Maintenance and Consultation.

3.b, c – These FRs have not been met again due to time constraints. I found that once I had implemented the core ability to book and re reviewed the specific requests of Rolsa they had not referred to cancelling, rearranging or adding a note to a booking as part of the desires for this push of development. I would like to see this be added in version 4 or 5.

4.a, b, c – These FRs are somewhat met. There is an admin panel in which you can see some metrics however it is not necessarily the ones outlined in the FRs themselves. These could be adapted in version 4 quite easily to tick these off the list.

Non-Functional Requirements

1. Performance and Speed

a. What are the loading times of the solution, are they within expected values defined as between 2 and 5 seconds in line with the average for the software space this will operate in
b. Efficiency of pulling through user data when they arrive at the dashboard. Again, asking are they waiting just those 2-5 seconds for the Database query or is the data being tied up for far too long.

2. Security and Protection of Sensitive Data

a. Usage of SHA-3 encryption system defined by NIST as: the most up to date and secure hashing algorithm working alongside and in place of the SHA-2 based as and when systems are upgraded or replaced. This SHA-3 system will be used for all password and sensitive data storage.
b. Storing only data that is needed in the database and only the necessary data as to avoid potential data breaches being worse than they need to be should they occur.

3. Usability

a. Is the system comprehensive and easy to understand. i.e. can any user pick up the website and understand its overall flow
b. Is the website compliant to WCAG and W3C in terms of being accessible to all user groups regardless of impairments to a certain point

1.a – NFR met as loading times are all within the expected / conventionally allowed range.

1.b – Dashboard page is currently static so for the moment the NFR is not met in this capacity BUT overall, the database queries are efficient and within normal constraints

2.a – SHA-3 was not an available protocol within my dev environment. I have opted for standard PHP hash. This is something I would look to change as soon as possible but for now the NFR remains not met.

2.b – The database stores all the data needed BUT only the data needed. As such I view this NFR as being met.

user_id	email_address	password	fname	sname	addressln1	addressln2	city	postcode	phone
3	seiko5@gmail.com	$2y$10$GCwsSNlaNUGkNTnFQtB/l.VC8uUBQn7bToM4bkGvhMT...	Seiko	Five	Seiko Village	Chase Spring	Nagasaki	BS-HS2	123456789
5	Bantams@yahoo.com	$2y$10$vYFwBaO9IN/i9rJxSHz/R./aHXCow1CW9CTmeGX34vB...	Billy	Bantam	Valley Parade	Midland Road	Bradford	BD8 7DY	123456789

No unnecessary data being stored, purely data for user identification and communication.

3.a – I would say that based on both user feedback and my own run through of the website, there is an inherent flow of both data and the users' actions. At times these can become a tad ambiguous but not to the extent that the user is completely stuck. NFR met

3.b – The site uses dyslexia friendly fonts; good contrasting colours and allows for compliance up to a certain extent. NFR met.

KPI's

Bookings

I would say that while the figures for the KPIs I outlined in my initial proposal (Task1_Proposal_000018212_Witney_J) may be quite ambitious, the website would certainly create an upturn in bookings and viewers turned into booking customers. There is absolutely room to analyse booking patterns and trends, however there is not

an easy way to do this, and I would need to analyse the raw database information.

booking_id	user_id	staff_id	date	product	type_of_booking
1	3	8	1743676800	Solar Panels	INSTALLER
3	3	9	1743416160	Heat Pump	CONSULTANT
4	3	10	1743418800	Insulation	MAINTENANCE
7	3	8	1744103700	Solar Panels	INSTALLER
8	3	9	1743753900	Heat Pump	CONSULTANT

There is definitely a need to properly create the admin panel overview of all bookings ETC as this isnt digestible to the human brain at all.

Client Uptake

I am willing to hazard a guess that Rolsa Technologies will see a large client spike because of the digital solution they possess. From a scattered mess of communication lines and no interlinked system to a centralised system for staff and customers alike will see customers not only coming and signing up for appointments but likely creating a heavy retention factor.

Client Reviews

Judging based on the system I have developed and other solutions out there it is obvious to me that the system Rolsa now possesses bridges a massive market gap giving customers what they want that they couldn't always get. I would confidently say that Rolsa will be showered in praise and 5-star reviews from their new digital system and its ease of consumer use.

How I would develop the prototype further

In terms of next steps, I would like to focus on the following:

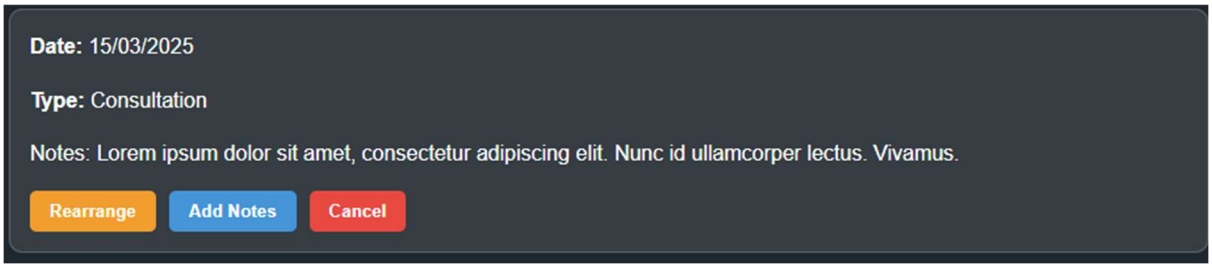
Profile Editing

I would ideally like to firstly ensure that all my initially laid out FR were accounted for, particularly taking time to work on the account systems 1.c and 1.d. These are both essential to the product before it can be released in any capacity. I would address them by creating a profile page in PHP that displays the full information set of a user

alongside the ability to edit and update any of the information. Releasing the product without the ability to edit information on the user side would likely cause the support call lines at Rolsa to be overwhelmed with users wanting their information updated.

Booking Rearrangement and Cancelling

My next port of call would be to revisit the booking system and properly implement the ability to reschedule, cancel and add a note to a preexisting booking (3.b, c) to allow a user the ability to do this themselves is for very similar reasons to the strain on customer helpdesk receiving an incomprehensible number of issues. I would look to have the new additions to the booking system be directly accessible from the dashboard where the appointments are displayed.



I would look to create a very comprehensive and easy to understand system to do this that allows the user full control over the appointments. There is already implementation to only allow for the user to book during working hours and this would make for a smoother creation of the rearranging given that the working week is a function and incredibly easy to call at the appropriate point in the rearranging script. Adding the full booking functionality puts the power into the users' hands and gives a hands-off approach to Rolsa staff where all they must do is turn up and do their job.

Carbon Footprint Calculator

Perhaps the largest incomplete part of the system is the carbon footprint calculator. At the time of development, I didn't feel happy with just calling an API for a carbon footprint calculator and instead decided to develop a bespoke one for Rolsa. This partly came down to security concerns around customer data being stored elsewhere and concerns of that data being sold for profit without Rolsa customers explicit permission leaving Rolsa open to liability.

Building the Carbon Calculator was no easy task, after an initial look at the UK Governments outlines on a carbon footprint calculator, I was sceptical that I would be

able to develop a completely legislation compliant one. At the time of development, I opted to roll certain factors into one mean average factor. Combining the travel factors for car, bike, train, plane etc provided slightly skewed results by comparison to the API calculations BUT provided user data safety.

```php
$factors = [
    'electricity' => 0.2,  // Conversion factor for electricity: 0.2 kg CO2 per kWh
    'gas' => 0.2,          // Conversion factor for natural gas: 0.2 kg CO2 per kWh
    'vehicle' => 0.15,     // Conversion factor for vehicle travel: 0.15 kg CO2 per mile
    'water' => 0.001,      // Conversion factor for water: 0.001 kg CO2 per liter
    'diet_meat' => 1500,   // Annual emissions for meat eater: 1500 kg CO2 per year
    'diet_veg' => 600      // Annual emissions for vegetarian: 600 kg CO2 per year
];
```

In terms of next steps, I would want to look at investing more time into digesting the UK standards for a carbon footprint calculation to build a true to legislation calculator. This is a chunk of a task, but it is pertinent to the finished product that it is accurate and compliant.

Security and Password Hashing

One of the biggest issues thus far in developing has been the suitability of my development environment. I have found that, as referenced earlier, I was not able to implement SHA – 3 or any other standard of password hashing besides the default PHP password hashing function. While I have settled for this in the short term, I am very aware that the product cannot be released without adopting the proper standardisation of data security. I would look to procure a better development environment for the next phase so that the required safety standards can be incorporated to bring the product into market compliance. Not adding the adequate safety standards means most likely the product would not see the light of day and if it ever did it would be a walk in the park for anyone with more than an hour's research into exploitations and SQL Attacks.