Milestone: User Research Plan – IT22283108

Introduction

"Solar Connect" is a mobile app I helped develop to make it easier for households and businesses to switch to solar energy. The app provides tools like a Solar Savings Calculator, product management, and order tracking, simplifying the decision-making process and helping users adopt solar energy. We designed the app with user feedback and research to ensure a smooth experience. It aligns with global goals for clean energy and aims to reduce carbon footprints while promoting sustainable living.

Test Objectives

Carbon Offset Calculator:

1. Check Ease of Use: Make sure users can easily find and use the calculator.

2. Verify Accuracy: Ensure the calculator gives correct estimates of carbon savings.

Installation and Maintenance Management System:

1. Check Ease of Use: Ensure users can easily schedule and manage services.

2. Verify Features: Make sure booking, tracking, and service records work properly.

3. Test Tracking Updates: Ensure users get accurate service updates and can view their history.

4. Find Issues: Identify any problems users face when managing services.

Methodology

The user research will involve a combination of interviews, video recordings, and questionnaires to gather comprehensive insights from each persona.

Interview

Interviewer: Could you start by introducing yourself and your role in the solar energy industry?

Interviewee (Kaveesha Thamuditha Perera): I am Kaveesha Thamuditha Perera, and I am a solar panel installation technician. I have been in this industry for a year now. My main job is to install solar panels.

Interviewer: What are some of the biggest problems you face in your work?

Interviewee: One of the biggest challenges is dealing with roofs that aren't great for solar panels. A lot of buildings, especially older ones, weren't built with solar in mind, so installations can be more complicated. Another issue is shading, which can really reduce how well the solar system works.

Interviewer: What specific challenges do you face when it comes to maintenance?

Interviewee: Maintenance can be tricky, especially when it comes to keeping the panels clean. Dust, bird droppings, and other debris can lower the panel's efficiency. We also need to check the inverters and other parts regularly to make sure everything is working well. In areas with bad weather, we have to watch out for damage from storms or strong winds.

Interviewer: When you're installing a new system, how do you figure out how much solar energy a home or business can generate?

Interviewee: We start by looking at the roof space and its angle towards the sun. Then we consider things like local weather, shading from trees or buildings, and how efficient the panels are. We use tools and calculators to estimate how much energy the system will produce.

Interviewer: Have you ever had to consider the environmental impact of solar installations, like how much carbon emissions are reduced by switching to solar?

Interviewee: Yes, definitely. Solar energy is much cleaner than using fossil fuels like coal or gas. I tell customers that every bit of solar energy they produce means less pollution in the air, which is great for the environment and helps fight climate change.

Interviewer: What about local incentives? Do customers usually know about the incentives available to them, or do you have to explain that to them?

Interviewee: Most customers don't know much about the incentives they can get. We usually explain the federal, state, and sometimes local incentives that can make their solar installation a lot cheaper.

Interviewer: After a system is installed, how do you make sure everything is working correctly, and what kind of support do you offer to the customer?

Interviewee: After we install the system, we test everything to make sure it's working properly. We also show the customer how to monitor their system so they can keep an eye on it. If anything goes wrong, they can reach out to us for help. Some companies also offer regular check-ups to ensure everything continues to run smoothly and to fix any issues that might come up over time.

Interviewer: Thank you for joining us and sharing your insights into the solar energy industry. Your expertise and experiences are valuable in understanding the challenges and benefits of solar installations.

Interviewee: Thank you for having me. It was a pleasure to discuss my role and the important aspects of working in the solar energy field.

Video Recording

https://drive.google.com/file/d/1DzHgSvAgaWoup3nnz7yv8ri5XKLSdhx5/view?usp=sharing

Participant Profiles

Name	Demography	Location	Date	Time
Kaveesha Thamuditha Perera	• Solar Technician • Male • 26 years old • Unmarried • Responsible, Hard working, Professional, Friendly	Wijerama, Sri Lanka	26/02/2024	2.00 p.m.

Questionnaire - Done as group work

User Research – Tasks/Scenarios - Done as a group task

Data Analysis

Qualitative Data:

The interview provides valuable insights into the challenges faced in solar energy installations. The interviewee talks about difficulties with older buildings and roofs not suited for solar panels, the negative effects of shading, and the complexities of maintenance, such as cleaning panels and checking equipment. They also highlight the importance of educating customers about the environmental benefits of solar energy, like reducing carbon emissions, and explaining financial incentives, which most customers are unaware of.

Quantitative Data:

While primarily qualitative, there are some numbers implied in the interview. Roof space, angle, and shading affect energy production, and tools are used to calculate potential output. The reduction in carbon emissions from switching to solar is quantifiable, though not specified in detail here. The interviewee also mentions financial incentives (federal, state, and local), which can be measured in terms of customer savings. Maintenance frequency and system performance, such as energy output or efficiency losses from dirt and debris, are other quantifiable aspects.

Data Analysis Plan:

For analysis, start by looking at how often issues like unsuitable roofs or shading affect installations, comparing their energy production to optimal installations. Collect data on how much efficiency is lost

due to dirt or debris and how often systems require maintenance. Also, track customer awareness of financial incentives and analyses how these incentives reduce installation costs. Finally, measure the environmental impact by calculating carbon emission reductions from solar energy use and evaluate how post-installation support affects long-term system performance. This will provide a clearer picture of both technical and customer-focused aspects of solar energy systems.