Technical Report - **Product specification**

Solar Grid Management

Course:	IES - Introdução à Engenharia de Software
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Project abstract:	Is a web based application that offers the means to manage a solar grid system and its internal logic.

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1 Introduction

This project was made in the context of the Introduction to Software Engineering course. In it, we propose, conceptualize and implement a solution for a Household Solar grid management system, or as we call it, <nome do app>.

This document serves to describe the product requirements and project structure, within the scope of the course. Personas, use cases and main scenarios are explored in the following chapters. The chosen architecture is also described.

2 Product concept

Vision statement

<> was developed with the intention to provide a tracking and management service for a household solar grid system.

This system was designed to be administered by a grid supervisor (super-user) and used by regular people with solar panels on their homes (regular users).

It will provide real-time data about the consumption and production of solar energy as well as historical data and statistics. It will also serve as a management hub for the grid supervisor, where he can manage new users and old ones as well as manage extreme events such as the malfunctioning of the solar panels in a specific home.

With this system in place, we can easily supply regular households with the information they need to manage their energy consumption, and the means for the grid supervisor to handle all his workload.

Personas

Daniel Rodrigues is a 30 year old male constructor, lives in Aveiro with his wife, two daughters and his son. He likes to spend time with his family and co-workers, likes to watch football matches, is a supporter of S.L Benfica and on Sunday likes the occasional barbeque.

Due to the current rise in living costs he decided to purchase some solar panels to save on the electricity bill, but a few months have gone by and although he is spending less than before, he believes that he can save more by tracking the energy production and consumption of the house and develop a more efficient way of spending energy during the day and night.

Vitorino Machado is the grid supervisor. He is 45 years old and still single. Lives in Leira but also has a home in Alentejo where he likes to spend the weekends.

He likes to hangout with his friends and go out at night, he is very present in social media. He is a hardworking man and very focused and confident.

In his work as the grid supervisor he is the one that makes sure that everything goes as smoothly as possible.

Main Scenarios

- Daniel heard about our service and wants to register, after he fills the form with the necessary information he waits for the acceptance of his profile into the service and makes the appointment for the sensor installment. After the installment, he is able to track real-time production and consumption of energy, historical data and statistics as well as report malfunction of his system.

- Vitorino starts to work at 9h00 and logs into his account. He starts by reviewing the new applications for the service and confirms them as well as the appointments of the installations. In mid-afternoon he receives an alert that a house is not producing energy when it actually should, so he contacts the client through the app and arranges a possible appointment to solve the issue.

User Stories

1. New users are able to register by filling in a form, and setting up an appointment to install the required sensor.

2. The grid supervisor must be able to accept or decline new applications and their appointments.

3. A user is able to see how much energy it is consuming and producing in real-time.

4. A user can consult his historical data.

5. A user can report malfunction or ask for assistance.

6. The grid supervisor has access to the grid consumption and production in real time as well as historical data.

7. The grid supervisor receives alerts of extreme events.

8. A user receives alerts of extreme events.