Wildfire Prevention and Fighting Dashboard Design

Helena Silva
up200803677@up.pt

Rui Costa
up202108271@up.pt

Sérgio Cardoso
up202107918@up.pt

Tomás Fontes
up202107382@up.pt

U.PORTO
FACULDADE DE CIÊNCIAS
UNIVERSIDADE DO PORTO

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Chapter 1

Introduction

As time goes by, we come to the conclusion that wildfires are some of the most fierce and dangerous threats to human and wildlife safety. One of the ways to prevent them is by using technological tools that can detect and combat them more effectively.

For this report, we divided all of the stages of our project into four sections:

- Section 1: from the problem description to the definition of stakeholders;
- Section 2: from the designed sketches to the iteration process;
- Section 3: from the description of the sketches in low fidelity to a description of the constituent parts of the requested system for this project;
- Section 4: from aspects of human interaction with the system to the overall improvements made.

Chapter 2

Section 1

For this work, we were given the task to create a dashboard that could simulate a real-time, real-world system for wildfire prevention. To achieve that goal, Silvanet Wildfire Sensors and Mesh Gateways are necessary to survey and detect wildfires effectively.

One of the biggest challenges we faced was keeping a complex system, with multiple functionalities, simple and intuitive to use without the need for prior knowledge on this specialized tech, such as the sensors and gateways.
In the context of this project, "stakeholders" can be defined as follows:

- Dryad (Sensor Manufacturer)
- Firefighters
- SIRESP - Portuguese National Emergency and Security Networks Operator
- Civil Protection
- City Council
- System Operators (from Civil Protection)

All of these entities play a crucial role in the process of fire monitoring and firefighting. Civil Protection agencies and firefighters rely on this interface to facilitate effective emergency responses and ensure public safety. Sensor and camera manufacturers contribute valuable technology that is essential for accurate data capture, enabling timely and precise detection. Local authorities have a vested interest in protecting their local areas and resources, and benefit from a tool that enhances their preparedness and risk management strategies. Finally, system operators are integral to ensure smooth operations, maintenance, and real-time monitoring capabilities which, in turn, make it possible for all stakeholders to rely on accurate and up-to-date information.

In order to come up with some of the sketches shown in Chapter 3, we created two fictional personas, in this case, two fictional potential users of the system. In the end, we came up with the following:

Persona 1:

- Joaquim Soares (35 years old):
  - Civil Protection agent;
  - Lives with his wife and kids in Aveiro;
  - Joined GNR and received police training at the age of 20;

  - Worked as GNR in Aveiro's district during the wildfires of Summer of 2024. After this catastrophic experience, he volunteered to become a Civil Protection Agent in this new program to prevent and fight forest wildfires.

Persona 2:

- João Rodrigues (24 years old):
  - Has a degree in Management of Safety, Emergency, and Civil Protection
  - Lives with his parents and sister in Aveiro
  - Currently undertaking a post-graduation degree in Civil Protection, through online classes
  - Works as an operations assistant for Civil Protection.
  - Has ambitions to climb the ranks in ANEPC by gathering experience in various fields

Chapter 3

Section 2

Chapter 4

Conclusion