Authors: DRUTEL – GALLÉ – GUILLEVIC – RASCOUSSIER

Air Watcher – Introduction Document

Sense it, process it, breathe it

I. Introduction

Air quality has been a big matter of concerns since the last century. These days, various government agencies are tracking with caution the content and the quality of their air for the safety of their people.

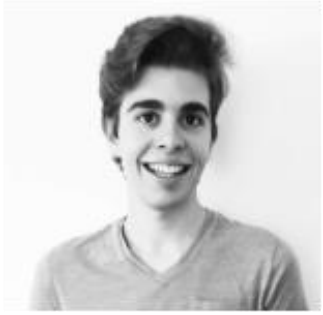
To pursue these goals, the newly created Belizean Air Agency tasked our team to develop an applet to process and visualize the air quality of its country based on its sensors dispatched all over the territory.

Our team, the AirGeneers, will create an app with C++ complying with these requirements named Air Watcher. Air Watcher will allow its users to access the sensors' data with statistics, to compare them and to calculate the air quality index. Finally, Air Watcher will be implemented along with a net of air cleaners in the country. The app will need to observe and validate the impact of these cleaners all around the country.

This project will be realized in approximately 20 hours, including conception, realization, and presentation.

II. Human Resources

II.1. The AirGeneers team



Maxence Drutel
Team manager and Algorithm Engineer

Maxence is the manager of the team meaning he is the least qualified person here. He's in charge of time management and task distribution.
He is also in charge of designing and coding the main algorithms of the application

Marie Guillevic
Application Quality Engineer

A good program is a working program. Marie is charged of designing and creating tests scenarios for the application, making sure of its robustness and quality.

Florian Rascoussier
Secure Application Architect

Florian listened carefully to a Security By Design lecture, and thus is perfectly qualified to be in charge of cybersecurity. He is tasked with the application's architecture and with the User/Data interaction, ensuring the app is easy to use, secure and its datas coherents.

Romain Gallé
Core Application Engineer

Romain is the cornerstone of our project. He's the main team member in charge of the application's core functionalities. He is first tasked with defining and designing the app's functions, and will then be supervising their developpement.

II.2. Task organization and Gantt Diagram

Work will be divided among all team members; our goal is to maximize parallel tasking to use our time at its maximum potential. Our developing process is incremental, we are advancing features by features, with an intermediate testing and security reviewing session.

We are planning more than two features for our app. We actually plan to be flexible, and to go as far as we can by the number of features developed by the team, while making sure our app is functional at each step.

The following Gantt Diagram presents the provisional Task Repartition, defined during the 1rst Lab Sequence.

6	Time	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30
7		Lab 1							
8	Florian	Task Division	Security Risk Analysis						
9	Marie	Task Division	Test Design				User Manual		
10	Maxence	Task Division	Intro & Roles			Gant Diagram		Manual	
11	Romain	Task Division	Function Specifications						

6	Time	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30
7		Lab 2							
8	Florian	Architecture					Class Diagram		
9	Marie	Test Plan					Class Diagram		
10	Maxence	Algorithms Conception						Class Diagram	
11	Romain	Define 3 scenarios	Sequence Diagrams						

6	Time	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30
7		Lab 3							
8	Florian	Env. Setup	User Login			Malfunction Analysis			
9	Marie	Env. Setup	Translation Data -> Object			Test Writing - Part One			
10	Maxence	Env. Setup	Translation Data -> Object			Mesurement Search			
11	Romain	Env. Setup	Translation Data -> Object			Sensor List		Air Quality Computation	

6	Time	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30
7		Lab 4							
8	Florian	Malfunction Analysis			User Listing and Award Points				
9	Marie	Air Quality History				Test Writing - Part Two			
10	Maxence	Sensor similarity comparison					Air Cleaners		
11	Romain	Mean Air Quality in an Area					Air Cleaners		

6	Time	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30
7		Lab 5							
8	Florian	User Interface					Security Checkup		
9	Marie	Testing and Debugging					Powerpoint		
10	Maxence	Air Cleaners		Performance Test + Optimisation			Powerpoint		
11	Romain	Air Cleaners		Memory Leak Checkup			Powerpoint		