PUC Minas

Internship Project: AirVision

Project plan

PUC Minas

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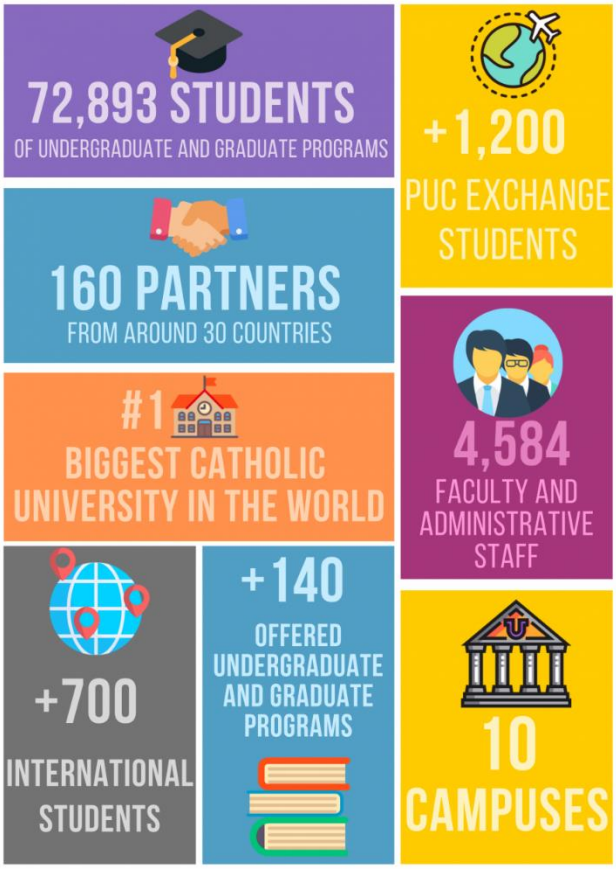
1 The University

The university that offers this project is the Pontifícia Universidade Católica de Minas Gerais, also known as PUC Minas. Specifically, at the campus of Coração Eucarístico, Belo Horizonte, Brazil.

The university has a wide availability of faculties ranging from undergraduate programs like accounting, law and computer science all the way to Masters and PhD's in dentistry, education and social sciences.

Here are some interesting statistics about the university:



2 Background

This project will result in an application that can be used by anyone who is interested in aviation, but also by the first-year students in the aviation faculty. This way they are supposed to get an interactive way of learning about aircraft. Since this is a new project there are no problem areas or other inefficient problems, there is no existing code-base to improve.

3 Goals

The application is targeted at mobile devices and possibly for AR glasses in the future. It will allow the user to see information about aircraft which they are pointing the camera at.

The primary goal that must be finished before the end of the internship is to have a working app that can scan aircraft using the mobile phone's camera by tapping on an aircraft in the viewfinder. When the app finds an aircraft, it will send a request to the backend and return information about the aircraft that has been selected.

We also want to have a map that displays the aircraft around the current user position making it possible to select one and get the information needed.

4 Business Case

As mentioned earlier, the primary target audience would be anyone that wants to learn something new about aviation or is generally just interested in aviation. Another use case is that first-year students of the aviation faculty can learn more about certain aircraft in the area with their own smartphone.

When this application gets finalized and everything is working like it should, it will be a huge benefit for basically everyone that wants to learn something new about aviation.

5 Planning

We decided to split the building process of this application into 5 phases as you can see below:

AirVision				
Planning				
02/03 - 06/03	09/03 - 16/03	23/03 - 08/05	08/05 - 22/05	If there is time
Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
What is the app?	Making mockups	App development	Testing	Expansions
How will it work?	Rest API Specifications	Backend development	Bug-fixing	Turn into game
Defining the specs of the app	Figure out ADS-B device		Adjusting	More testing
Technical analysis	Figure out how to map mobile data to aircraft			
	Figure out Flutter			
	Research Tensorflow Lite			

There are more in-depth plans for both the front-end and backend, these will each have a weekly planning with the objective we want to accomplish in that specific week. At the end of a week we will to reflect on our planning and look if we accomplished what we initially tried to accomplish. If we have accomplished our goal, we give it a green check, otherwise we will make it red and reschedule the goal for another week.

Here is an example of how our weekly planning will look like:

AirVision				
Front-end				
Start	End	Tasks	Completed	Rescheduled @
2/03/2020	6/03/2020	Taskname	NOK	New date
			OK	
9/03/2020	13/03/2020			
16/03/2020	20/03/2020			
23/03/2020	27/03/2020			
30/03/2020	3/04/2020			
6/04/2020	10/04/2020			
13/04/2020	17/04/2020			
20/04/2020	24/04/2020			
27/04/2020	1/05/2020			
4/05/2020	8/05/2020			
11/05/2020	15/05/2020			
18/05/2020	22/05/2020			
25/05/2020	29/05/2020			

6 Project organization

For this project we will be reporting to Sandro Jerônimo de Almeida, an Artificial Intelligence professor at PUC Minas who handed us the project.

The project has been split up into two parts, one part being the front-end and another part being the backend:

- The front-end development will be done by Wesley Janse.
- The back-end development will be done by Seppe Volkaerts.
- General project documents will be made in conjunction, other specific documents about the front or backend will be made by the person who is responsible for that part of the project.

7 Information and reporting

To keep our mentor (Sandro Jerônimo de Almeida) updated, we have scheduled weekly meetings to discuss the project status. These meetings took most of the time place on Wednesday in his office when we were still in Brazil. Since we arrived back in Belgium, the meetings have been taking place on Fridays through Google Hangouts.

We will also send a weekly report about our progress and struggles to our mentor (Michiel Verboven) in Belgium.

We will also document our progress on this project in several documents which are explained below.

Project description

A brief description of what the projects about and what the end goal is of the project.

Technical analysis

Full technical analysis, from which technology will be using and how we can process the data provided by the technology to develop the project.

Implementation

In this document we will describe the technical implementation of the project.

Realization

A full summary of the project.

Reflection

A personal reflection of the internship period.