Project Management Plan

Logo

Description automatically generatedIndoor climate control system

**CEO:** Brice Guayrin

**TUTOR:** Oswald Figaroa, Xuemei Pu

**TEAM MEMBERS** (Group #3):

* + - Victor Covalciuc
    - Žana Bašić
    - Farros Ramzy
    - Sonam Lama
    - Andy Verkooijen

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# Document history

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Version | Author | Date | Description | Status |
| 1.0 | Group #3 | 26-02-2022 | Draft Project Plan | Pending, W.I.P. |
| 2.0 | Group #3 | 05-03-2022 | Project Plan | Pending, W.I.P |
| 3.0 | Group #3 | 09-03-2022 | Draft Revamp Project Plan | Pending, W.I.P. |
| 4.0 | Group #3 | 10-03-2022 | Revamp Project Plan | Final |

# Terms & abbreviation

|  |  |
| --- | --- |
| SDD | System Design Document |
| UI | User Interface |
| MVP | Minimum Valuable Product |
| TVOC | Total Volatile Organic Compounds |
| SP | Sprint |

# Project Description

## Context

Airios, founded in 1982, is a systems manufacturer, which produces custom-made electronics for residential climate control. It began as a joint venture with Honeywell, although it is an independent organization today, it specializes in climate control systems, them being the strong suit of the company. Airios has also set their foot into other branches revolving around the control of the environment such as the connectivity, appearances, and inner components of the products. The company strives to create its products like no other on the market by researching customers' needs as well as applying their feedback along the way. The final product is configured with the necessary safety measures as well as the reliability need for the entire system to keep working for a long time.

## Project Goal

The goal of this project is to produce a smart indoor climate control system, which will provide the user with an appropriate environment. The problems the company is being presented with are climate changes which cause the weather to be more unpredictable than ever along with the bad air quality. In this project Airios will attempt to create a system that will automatically regulate the indoor temperature and air quality by comparing it to the preferred user setting and adjusting accordingly.

## Project Scope

Table 1. 1 – Showing the features that are inside the scope of the project (on the left) and features outside the scope of the project, optional (on the right)

|  |  |  |  |
| --- | --- | --- | --- |
| **Inside scope:** | | **Outside scope:** | |
| 1 | Ventilation Box (Simulated App & Physical Fan) | 1 | Mobile App |
| 2 | Room Control UI | 2 | Scheduler |
| 3 | Wireless Communication | 3 | GPS Sensor |
| 4 | Database | 4 | Damage/Harm Detector |
| 5 | Analytic App |  |  |
| 6 | SDD |  |  |
| 7 | Room Climate Sensors (Temperature, Humidity, CO2, TVOC) |  |  |
| 8 | Weather |  |  |

## Research Question

Main RQ:

* **How can modern advancements in technology such as new types of sensors and creative thinking can contribute to improving the control of the indoor climate/environment?**
  + Information provided by answering this question will show how new technologies and discoveries can improve the quality of life for the end-user of the system. We will manage to answer this question by using such new technologies and observing the result they produce for their intended environment.

Auxiliary RQ:

1. **What is it needed for the automatic climate system work properly at a basic level or more?**
   * For the automatic system to work accordingly and at a decent/basic level it is required that the following function within proper parameters: Detection of CO2 in the air, automatic ventilation with default presets, UI for the main control panel, Wireless Communication and Temperature/Humidity Sensors. Answering this question will be done by implement all of these sensors together and testing only with the above-mentioned detectors in order to observe the functionality of the system at such level.
2. **What is required to make the system adapt to its environment climate?**
   * In order to adjust to the environment, it is necessary that the Temperature, Humidity and CO2 sensors are in working parameters i.e., the air quality sensors. Furthermore, the communication between these needs to work in a reliable manner so as not have corrupt or missing data. Answering this question will be done by observing the data from the sensors and finding such manner for the system that it will nicely and autonomously adapt to its surrounding environment.
3. **How to make the system communication reliable?**
   * Creating reliable communication between components will be done by using modern means of transfer of data, that being WI-FI communication.
4. **How frequently should the control panels receive data?**
   * The frequency of supply of data ought to be in accordance with the importance of the feature to the main functionality of the system.
5. **How to make the indoor climate control system responsive?**
   * This is done by using well implemented manners of working for the systems and high precision sensors for detecting.

## End Products & Deliverables

* The content of objects delivered at the end of the project will be consisting of the following listed below and in the tables, also below:
  + MAIN DELIVERABLES
    - Indoor Climate Control System
      * Various Sensors such as: CO, CO2, VOC, Temperature and Humidity.
    - Code for The Climate Control Application
      * C Code for the hardware part, C# Code for the control applications.
    - Project Plan Document
      * Final Version of the Project Plan
    - User Stories
      * Various user stories on how a user would interact with the system.
    - System Design Document
      * State Machines
      * Context Diagram
      * Hardware Diagrams
      * Circuit Diagrams of the system.

Table 1. 2 – This tables shows deliverables per SPRINT with their more detailed description.

! MENTION ! - This table will be updated after each meeting with the client where we plan for the next sprint.

|  |  |
| --- | --- |
| **End Products** | **Description** |
| * **SP0**  1. Project Plan 2. User Stories 3. Features | * Project description   + Project scope * Project organization   + Roles & responsibilities * Project way of working   + Stand up meeting setups   + sprint demos   + communication plan   + testing strategies * Timeline & milestones * Deliverables (remark: e.g. use cases/acceptance test cases, FRS, code, acceptance test report, etc) * Risks analysis * Configuration management:  how the team will track the changes in code, files, and etc   + how to tag   + how to branch   + how to baseline   + how to release   **(UPDATE AT THE END OF WRITING THE PROJECT PLAN)** |
| * **SP1**  1. Sensors 2. MVP 3. System Design Document 4. Communication Protocol | * Here we intend to deliver working sensor circuits which read and display proper messages according to the environment around them, this should be a MVP. |
| * **SP2** |  |
| * **SP3** |  |
| * **SP4** |  |
| * **SP5** |  |

Table 1. 3 – Showing What Will Be Delivered ( on the left ) and When Will it Be Delivered ( on the right )

|  |  |
| --- | --- |
| **Deliverables** | **Deadlines** |
| **Project plan** | 14-03-2022 |
| **Sprint 0** | 07-03-2022 |
| **System Design Document** | 20-03-2022 |
| **Sprint 1** | 28-03-2022 |
| **Sprint 2** | 13-04-2022 |
| **Sprint 3** | 11-05-2022 |
| **Sprint 4** | 01-06-2022 |
| **Sprint 5 & Final Presentation** | 20-06-2022 |

# Project Organisation

## Team members, roles and responsibilities WITH Stakeholders

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Abbreviation** | **Role and functions** | **Availability** |
| *Brice Guayrin* | *B. Guaryin* | *Product Owner of Airios Department* | *-Monday from 13 pm, Tuesday, Wednesday, Thursday, Friday*  *-Fontys R.10 or*  [*b.guayrin@fontys.nl*](mailto:b.guayrin@fontys.nl) |
| *Victor Covalciuc* | *V. Covalciuc* | *Project Team Leader ( Scrum Master )* | *-Monday & Wednesday,*  *09.00 - 21.00*  *-Tuesday or Thursday,*  *09.00 - 21.00*  *-Friday 09:00 - 16:00*  *-Saturday 10:00 - 12:30*  *-Fontys R.10 or* [*v.covalciuc@student.fontys.nl*](mailto:v.covalciuc@student.fontys.nl) |
| *Žana Bašić* | *Z. Basic* | *Project Team Co-Leader*  *( Co - Scrum Master )* | *-Monday & Wednesday,*  *13.00 - 16.00*  *-Tuesday or Thursday,*  *16.00 - 17.00*  *-Friday & weekends*  *16.00 - 20.00*  *-Fontys R.10 or* [*z.basic@student.fontys.nl*](mailto:z.basic@student.fontys.nl) |
| *Farros Ramzy* | *F. Ramzy* | *Project Team Member* | *-Monday & Wednesday,*  *13.00 - 16.00*  *-Tuesday or Thursday,*  *16.00 - 17.00*  *-Fontys R.10 or* [*f.ramzy@student.fontys.nl*](mailto:f.ramzy@student.fontys.nl) |

|  |  |  |  |
| --- | --- | --- | --- |
| *Sonam Lama* | *S. Lama* | *Project Team Member* | *-Monday & Wednesday,*  *13.00 - 16.00*  *-Tuesday or Thursday,*  *16.00 - 17.00*  *-Fontys R.10 or* [*s.lama@student.fontys.nl*](mailto:s.lama@student.fontys.nl) |
| *Andy Verkooijen* | *A. Verkooijen* | *Project Team Member* | *-Monday & Wednesday,*  *13.00 - 16.00*  *-Tuesday or Thursday,*  *16.00 - 17.00*  *-Fontys R.10 or* [*a.verkooijen@student.fontys.nl*](mailto:a.verkooijen@student.fontys.nl) |
| *Pu Xuemei* | *X. Pu* | *Tutor* | *-Fontys R.10 or* [*x.pu@fontys.nl*](mailto:x.pu@fontys.nl) |
| *Oswald Figaroa* | *O. Figaroa* | *Tutor* | *-Fontys R.10 or* [o.figaroa*@fontys.nl*](mailto:o.figaroa@fontys.nl) |

|  |  |  |
| --- | --- | --- |
| Stakeholders | Implication in Product | Roles |
| CLIENT i.e. CEO | It is the one who is requesting the product in order to bring something new to the market. | PROJECT/PRODUCTOWNER |
| USERS/CUSTOMERS | They are the ones which profit off recent advancements in technology for their comfort. | PRODUCTEND-USER |
| TUTOR | It is the one who will be our guide into the making of this project. | PROJECTGUIDE |
| TEAM LEADERS | They are the ones which will manage the team through the course of the project, while also working on it. | PROJECTLEADER & DEVELOPERS |
| TEAM MEMBERS | They are the one which will be the main builders of the project. | PROJECT DEVELOPERS |

## Communication

* In order to facilitate

|  |  |
| --- | --- |
| Means | Reason |
| Fontys R10 | Meating with client and physical gatherings for work on project |
| WhatsApp | Important discussions and essential announcements |
| Discord | Online gatherings for work and discussion on the project |
| Microsoft Teams | Backup Platform with the same reasons as Discord |
| Outlook | Discussions for Sprint Meeting with the Client |
| Azure DevOps | Version Control Management together with Sprint and Agile Management |