A drone flying over a field

Description automatically generated

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# Project Background

Agriculture faces challenges like labor shortages, rising costs, and environmental concerns. Traditional aerial spraying methods are inefficient and unsustainable. AeroCrop aims to transform agriculture by replacing manned aircraft with drones equipped with advanced sensors and precision spraying mechanisms. These drones autonomously map fields and deliver targeted applications of agricultural inputs with unparalleled accuracy. The project's objectives include developing robust drone systems, conducting field trials, and obtaining regulatory approvals. AeroCrop seeks to increase crop yields, reduce resource usage, and enhance sustainability, ushering in a brighter future for agriculture.

# Project Goal

The goal of AeroCrop is to revolutionize agriculture by implementing advanced drone technology to replace traditional aerial spraying methods. By developing and deploying precision drone systems, the project aims to optimize crop management practices, increase agricultural efficiency, reduce resource usage, and enhance sustainability. Ultimately, AeroCrop seeks to empower farmers with cutting-edge tools and techniques that improve crop yields, protect the environment, and ensure food security for future generations.

# Research & Content Strategy

1. **Research Questions:**

- What challenges do farmers face in crop management and aerial spraying?

- What drone technologies are suitable for AeroCrop's goals?

- What are the regulatory requirements for drone use in agriculture?

- Are there successful examples of drones in agriculture?

1. **Methods:**

- Review existing publications, reports, and studies on agriculture and drone technology.

- Conduct surveys and interviews with farmers, experts, and regulators.

- Evaluate available drone technologies and regulations.

1. **Data Collection and Analysis:**

- Gather information from surveys, interviews, and literature review.

- Analyze data to identify trends and insights.

- Use findings to inform decision-making and strategy.

1. **Stakeholder Engagement:**

- Collaborate with farmers, experts, and regulators to validate findings and gain insights.

- Share research results through presentations and discussions.

1. **Reporting:**

- Document findings in a simple research report.

- Present results to stakeholders to guide AeroCrop's development and implementation.

**Research Links:**

* <https://www.foodlogistics.com/sustainability/agriculture/article/22870515/hylio-how-drones-help-farmers-reduce-climate-change-impact-of-food-supply-chain>
* <https://www.fairlifts.com/helicopter-services/agricultural/understanding-agricultural-drones-a-brief-guide-to-modern-farming-technology/>
* <https://www.agaviation.org/policy/environmental-issues/>
* <https://aviationbenefits.org/environmental-efficiency/aviations-impact-on-the-environment/>

# Phasing

Phase 1: Ideas and Mind maps

Phase 2: Team organization and plan

Phase 3: Research and Prototyping

Phase 4: Website implementation

Phase 5: Finalization of the Project

# Deliverables

These are the things that we will be delivering throughout the project:

|  |  |  |  |
| --- | --- | --- | --- |
| **Activity name** | *Team Charter* | **Delivery date** | *00-00-00* |
| **Input** | *Discuss the norms and rules in the team* | | |
| **#1** | **Activities:** Create a document for a team charter | | |
| *The team is going to discuss and agree on the norms and rules that they will apply to throughout the project. All of the team members have to agree.* | | | |
| **Output** | *A PDF document of the team charter* | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Activity name** | *Research* | **Delivery date** | *00-00-00* |
| **Input** | *Do some research* | | |
| **#1** | **Activities:** Focus on drone related research in agriculture | | |
| *The team is going to conduct a research on food related aspects of the students’ life. What the students value in the recipes and which cuisines they prefer.* | | | |
| **Output** | *A survey and a PDF file with research and conclusions* | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Activity name** | *First prototype* | **Delivery date** | *00-00-00* |
| **Input** | *Making the very first prototype* | | |
| **#1** | **Activities:** Using Figma to make a wireframe prototype | | |
| *The team needs to agree on a layout of specific pages that the user will see on the website. The first step will be to make a simple wireframe.* | | | |
| **Output** | *A wireframe prototype that is accessible via Figma* | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Activity name** | *Second prototype* | **Delivery date** | *00-00-00* |
| **Input** | *Making a more advanced prototype* | | |
| **#1** | **Activities:** Using Figma to make an advanced prototype | | |
| *The team will think of the style of the website, implement the most important functionality into the prototype* | | | |
| **Output** | *An advanced prototype that is accessible via Figma* | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Activity name** | *Pre-final product* | **Delivery date** | *00-00-00* |
| **Input** | *Working design some time before the deadline* | | |
| **#1** | **Activities:** coding the well-functioning website | | |
| *The team will finish the main features of the website that all the members agreed on. The website should be fully functional, with only some cosmetic improvements to be made.* | | | |
| **Output** | *A fully functioning website and system* | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Activity name** | *Final product* | **Delivery date** | *00-00-00* |
| **Input** | *Last touches before the final deadline* | | |
| **#1** | **Activities:** Last code implementations | | |
| *The team has some time to polish their design and work on the final visual touches that will make the website more interesting and user-friendly.* | | | |
| **Output** | *The final website version and URL* | | |

# Non-Deliverables

AeroCrop won’t be delivering and of the hardware. The Hardware needs to be bought separately. We are only offer the application and resources.