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Project Management

Provide here an overview of the contents (structure) of this chapter. Explain the project management approach your group followed and justify why you think it is a good approach.

Scope

Defining the scope of Bloem is essential for keeping our efforts focused on the project's core objectives. By mapping out exactly what is included in the project, we can prevent scope creep and make sure every team member understands the roadmap. The Work Breakdown Structure (WBS) in Figure 1 below illustrates how we have divided the project into manageable phases to ensure we reach a successful final prototype.

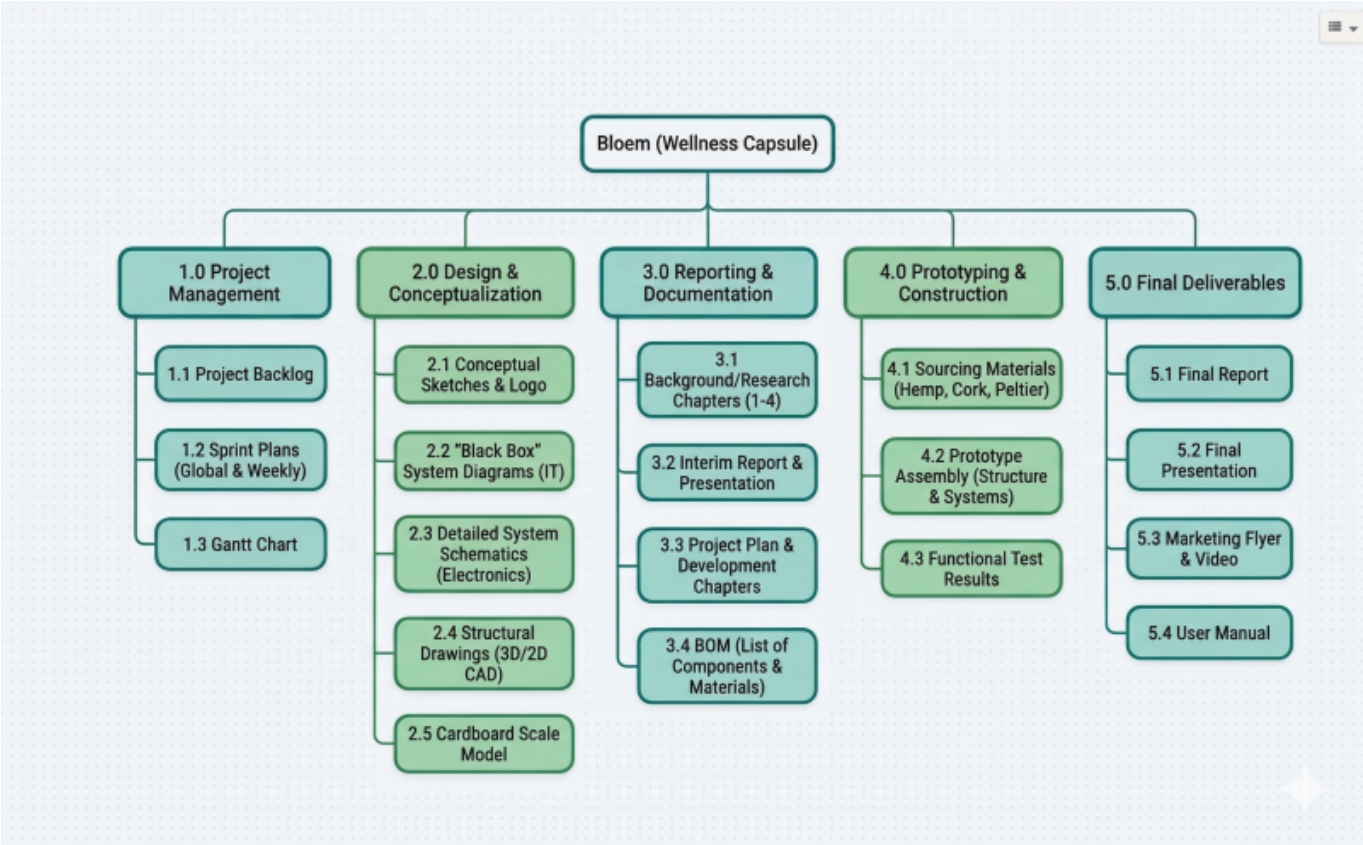


Figure 1: WBS

Time

3.2 Time

In this section, we lay out the schedule and all the major deadlines we have to hit throughout the semester. This is shown in Table 1. Tracking these milestones is really important because it keeps the whole team accountable and makes sure we're actually making steady progress on Bloem. It also helps us see if we're falling behind early on, so we can fix things before they become a real problem.

Table 1: Key milestones

Task	Proposed date
Choose the project proposal	2026-02-28
System Diagrams & Structural Drafts	2026-03-11
List of Components and Materials	2026-03-18
Project Backlog, Global Sprint Plan, Initial Sprint Plan and Release Gantt Chart	2026-03-21
System Schematics, Structural Drawings and cardboard scale model	2026-03-25
Interim Report and Presentation	2026-04-12
Interim Presentation	2026-04-16
3D model video	2026-04-22
Final List of Materials	2026-04-29
Refined Interim Report	2026-05-02
Packaging Solution	2026-05-13
Functional Tests	2026-05-27
Final Report, Presentation, Video, Paper, Poster and Manual	2026-06-13
Final Presentation	2026-06-18
Demonstration of the operation of the prototype	2026-06-25

Cost

The cost analysis for this project considers both the physical components required to build the Bloem prototype and the estimated personnel effort needed to design, develop, and integrate the final solution. Based on the current Bill of Materials, the project cost is mainly driven by the structural elements of the capsule, while the electronic system represents a smaller but essential part of the total investment.

3.3.1 Material Cost

The list of materials below summarizes the components required for the construction of the Bloem capsule, including structural materials, interior elements, control hardware and electronic components.

Table 2: Cost of components

Category	Component	Quantity	Unit Price	Total Price	Link
Materials	Cork insulation GO4CORK	11	28.89 €	317.79 €	Link
Materials	Planed wooden slat WHITE CASQUINHA	16	4.09 €	65.44 €	Link
Materials	SPAX Screws	1	5.69 €	5.69 €	Link
Materials	Hemp Granules 15	9	28.41 €	255.69 €	Link
Materials	Plywood Interior Poplar B/BB (Wooden Shell)	6	48.55 €	291.30 €	Link
Materials	Wide Square k2 L-brackets	2	1.29 €	2.58 €	Link
Materials	Pattex Wood Glue	1	6.96 €	6.96 €	Link
Materials	Birch plywood board (wooden floor)	2	58.81 €	117.62 €	Link

Category	Component	Quantity	Unit Price	Total Price	Link
Materials	Plywood Interior Poplar B/BB (Door)	2	45.00 €	90.00 €	Link
Materials	Door Hinges 100	6	10.99 €	65.94 €	Link
Materials	Soft seating fabric	6	13.36 €	80.16 €	Link
Materials	Foam flakes filling	24	4.84 €	116.16 €	Link
Materials	Birch plywood board (seat frame)	2	58.81 €	117.62 €	Link
Materials	Galaxy Tab A9	1	159.00 €	159.00 €	Link
Materials	Tablet holder DURABLE 893323	1	88.71 €	88.71 €	Link
Materials	PLA GO&PRINT White	15	13.97 €	209.55 €	Link
Electrical	ESP32-S3 Development Board	1	13.90 €	13.90 €	Link
Electrical	RGB LED Strip	1	16.00 €	16.00 €	Link
Electrical	Speaker GAT-801	1	28.91 €	28.91 €	Link
Electrical	N-channel MOSFET	1	17.90 €	17.90 €	Link
Electrical	Resistor set	1	11.85 €	11.85 €	Link
Electrical	BH1750 Light sensor	1	4.00 €	4.00 €	Link
Electrical	LM2596 Buck Converter	1	5.72 €	5.72 €	Link
Electrical	Red/Black Wire	1	3.51 €	3.51 €	Link
Electrical	12 V Power Supply	1	10.50 €	10.50 €	Link
Shipping	All suppliers combined	1	437.49 €	437.49 €	-
Total Material Cost				**2539.99 €**	

The total material cost of the Bloem prototype is therefore 2539.99 €. Most of this value comes from the structural and interior construction materials, especially the cork insulation, plywood panels, flooring, and seating structure. The electronic system has a comparatively lower cost, with a total of 133.78 €, while still enabling the interactive lighting and sound features required by the concept.

3.3.2 Personnel Cost

In addition to the material cost, the development of Bloem also involves a significant personnel investment. This includes the time dedicated to concept development, structural design, 3D modelling, UI design, electronics integration, sourcing, testing, and documentation. Considering a multidisciplinary student team working on the project over a full semester, the personnel effort represents a much higher value than the prototype materials alone.

Assuming a team of six members, each contributing an average of 6 hours per day over a four-month period, excluding weekends, the total effort corresponds to approximately 3168 working hours. Using a reference rate of 14.00 €/h, the estimated personnel cost is 44 352.00 €.

When combining the physical materials with the estimated labor effort, the total project value of Bloem is 46 891.99 €.

Quality

For the Bloem project, quality management ensures that both the final deliverable meets high

engineering standards and the development process itself is efficient and reliable. Therefore, we define and monitor quality across two primary domains: the physical product and the project execution.

Product Quality (Physical Performance & Specifications)

The physical prototype of the Bloem capsule must adhere to strict technical and structural specifications to ensure a safe and relaxing user experience. Quality in this domain is evaluated based on the following explicit material and functional requirements:

- **Resilience and Durability:** The structure must withstand daily entry, exit, and usage. The sustainable materials selected (cork and hemp insulation) must not easily degrade, warp, or tear under normal indoor environmental conditions.
- **Weight Load Capacity:** The structural frame and base must safely hold specified weight loads. The seating area is designed to support a user weighing up to 150 kg without any structural deformation or stress fractures.
- **Dimensional Tolerance:** Precision in assembly is critical to maintaining the egg-shaped geometry. The overall structural dimensions have an acceptable tolerance of ±2.0 cm. For connecting joints and the sliding door track, the tolerance is restricted to ±0.5 cm to ensure smooth, friction-less operation.
- **System Functionality:** Every smart feature—including the ESP32 sensor integration, lighting, and tablet interface—must operate seamlessly. The user must experience low-latency responses when controlling the internal environment.
- **Environmental Impact:** The product must utilize locally sourced, bio-based materials to maintain a low carbon footprint and adhere to a circular design philosophy.

Project Quality (Process Quality & Delivery Reliability)

To guarantee a successful and professional outcome, we apply strict quality standards to our teamwork, workflow, and documentation.

- **Process Quality:** High process quality means accurately estimating our effort breakdowns, completing planned sprint tasks with carrying them over only rarely and ensuring clear communication across our team.
- **Delivery Reliability:** All project milestones—such as the Interim Report, Final Presentation, and Prototype Assembly—must be delivered fully complete and strictly on time.
- **Documentation Standards:** All reports and wiki pages must maintain consistent formatting. Explanations must be direct and easy to read and all documents must feature the ISEP and Bloem brand logos using the established color palette.

Quality Control Table

To systematically verify these requirements during the assembly and testing phases, we use the following quality control matrix.

Table 3: Bloem Quality Control Matrix

What is observed/checked	Acceptance Criterion	Allowed Deviation Range
Overall Structure Dimensions	Matches the 3D CAD model specifications	± 2.0 cm
Joint / Door Alignment	Sliding door opens and closes smoothly	± 0.5 cm

What is observed/checked	Acceptance Criterion	Allowed Deviation Range
Structural Load / Weight	Base and seating safely support a user	Max 150 kg (No lower deviation allowed for safety)
Material Finish	Cork and hemp panels are securely glued; no peeling	± 2.0 mm gap tolerance
App-to-Hardware Latency	LEDs and music change state upon app input	< 100 ms

3.5 People and Stakeholder Management

At the beginning of the project the team assessed its academic backgrounds to establish initial leads for technical and structural domains. However, recognizing the highly integrated nature of the Bloem capsule, the team adopted a flexible operational model. Resource allocation is adjusted during weekly sprint planning and meetings to ensure a balanced workload.

Beyond the internal team, external stakeholders play a crucial role in the project's viability. To manage these relationships effectively, a structured stakeholder classification model is used, analyzing the following dimensions:

- **Power vs. Influence:** It is vital to distinguish between decision authority and the ability to affect outcomes. **Power** refers to formal authority (e.g., grading, funding approval, administrative sign-off), whereas **Influence** dictates how much a stakeholder can steer the project's success through technical advice, resources, or feedback.
- **Type of Influence and Impact:** Each stakeholder is evaluated on their level of influence (Low, Medium, or High) and their impact—meaning how strongly they are personally or professionally affected by the project's outcome.
- **Level of Support:** Stakeholders are categorized by their stance: **Supporter** (actively aids the project), **Neutral** (neither helps nor hinders), **Blocker** (potential source of delay, such as supply chain bottlenecks), or **Decision-Maker** (holds the ultimate authority on project progression).

Table 4 outlines this classification for the Bloem project.

Table 4: Stakeholder Classification Matrix

Stakeholder	Description	Power	Influence	Impact	Level of Support
Team Bloem	Core group responsible for the design and build.	Medium	High	High	Supporter
Project Supervisors	Advisors providing technical and academic guidance.	High	High	Medium	Decision-Maker / Supporter
Benedita Malheiro	EPS Coordinator managing the program structure.	High	Medium	Low	Decision-Maker
ISEP	Main sponsor providing workspace and funding.	High	High	Low	Supporter
Office Workers	End-users providing needs and UX feedback.	Low	Medium	High	Neutral / Supporter
Suppliers	External providers for cork, hemp, and electronics.	Low	Medium	Low	Neutral / Blocker (if delayed)

Stakeholder Communication Strategy

To ensure each stakeholder receives the appropriate information without being overwhelmed,

communication is tailored based on their classification:

- **Internal Team (Team Bloem):**
  - *How:* WhatsApp for rapid alignment, MS Teams for documentation.
  - *Frequency:* Daily.
  - *Detail Level:* Extremely detailed and highly technical.
- **Project Supervisors & EPS Coordinator:**
  - *How:* In-person meetings, MS Teams and email.
  - *Frequency:* Weekly.
  - *Detail Level:* Medium to high. Focuses on progress overviews, milestone achievements, and specific technical or ethical obstacles.
- **Target Group (Office Workers):**
  - *How:* Surveys, interviews, and prototype testing sessions.
  - *Frequency:* Phase-based (Research and Testing phases).
  - *Detail Level:* High-level, focusing entirely on user experience, ergonomics, and functional feedback rather than technical mechanics.
- **Suppliers:**
  - *How:* Email and direct phone calls.
  - *Frequency:* As needed during the procurement phase.
  - *Detail Level:* Highly specific regarding material specifications, dimensional tolerances, quantities, and delivery timelines.

3.6 Communications

Effective synchronization is essential to manage all components of the Bloem project. To maintain progress, the team utilizes specific tools to stay connected. Daily communication occurs via **WhatsApp**, facilitating quick coordination and immediate problem-solving when issues arise. For formal documentation, **Microsoft Teams** serves as the central repository for report drafts and all project files. Additionally, the team relies on **Jira** to manage weekly sprints, providing clear visibility into task assignments and current project status.

Information Flow To ensure organized and professional communication, project information is distributed strictly according to stakeholder relevance:

- **Internal Team:** Receives raw data, design drafts, daily task updates, and internal meeting minutes.
- **Project Supervisors & EPS coordinator** Receive weekly progress summaries, milestone deliverables and formal technical/academic questions.

Table 5 shows the general communication channels established for interactions with these stakeholders.

Table 5: Communication Channels and Stakeholders

Stakeholder	Channel	Frequency	Purpose
Team Bloem	WhatsApp, Teams & In-person	Daily / As needed	Quick updates, file sharing, and internal coordination.
Project Supervisors	MS Teams & In-person	Weekly	Presenting progress and receiving feedback on the work.

To structure the workflow, specific recurring meetings have been established. Table 6 outlines the

formal meeting schedule.

Table 6: Project Meetings Overview

Type of Meeting	Who (Participants)	What (Purpose)	When / Frequency	Communication Channel
Daily Sync	Team Bloem	Quick status updates, identifying immediate blockers.	Daily	WhatsApp
Sprint Planning	Team Bloem	Reviewing completed work and assigning Jira tasks.	Weekly	In-person
Supervisor Meeting	Team Bloem & Supervisor Panel	Presenting weekly progress, discussing milestones, and addressing specific technical or ethical domain questions.	Weekly	In-person / MS Teams
Working Sessions	Team Bloem	Active physical prototype development and software integration.	Multiple times a week	In-person

Issue Escalation Protocol When challenges or technical blockers arise, the team follows a defined escalation path to resolve issues efficiently and prevent project delays:

1. **Level 1 (Internal Resolution):** The issue is first raised via WhatsApp or during a daily working session. The multidisciplinary team attempts to troubleshoot and resolve it internally within 24 to 48 hours.
2. **Level 2 (Supervisor Escalation):** If the issue persists, requires specific academic guidance, or impacts the budget, it is documented and formally brought to the relevant Project Supervisor (e.g., addressing structural questions to the mechanics supervisor or UI questions to the IT supervisor) during the weekly meeting.

Risk

3.7 Risk Management

Risk management is essential to identify, evaluate, and mitigate potential issues that may arise during the development and implementation of the Bloem capsule. Each identified risk is assessed based on its probability of occurrence and its potential impact on the project. A 5×5 risk matrix is used to classify risks and support decision-making regarding mitigation strategies. This matrix is shown in Figure 2.

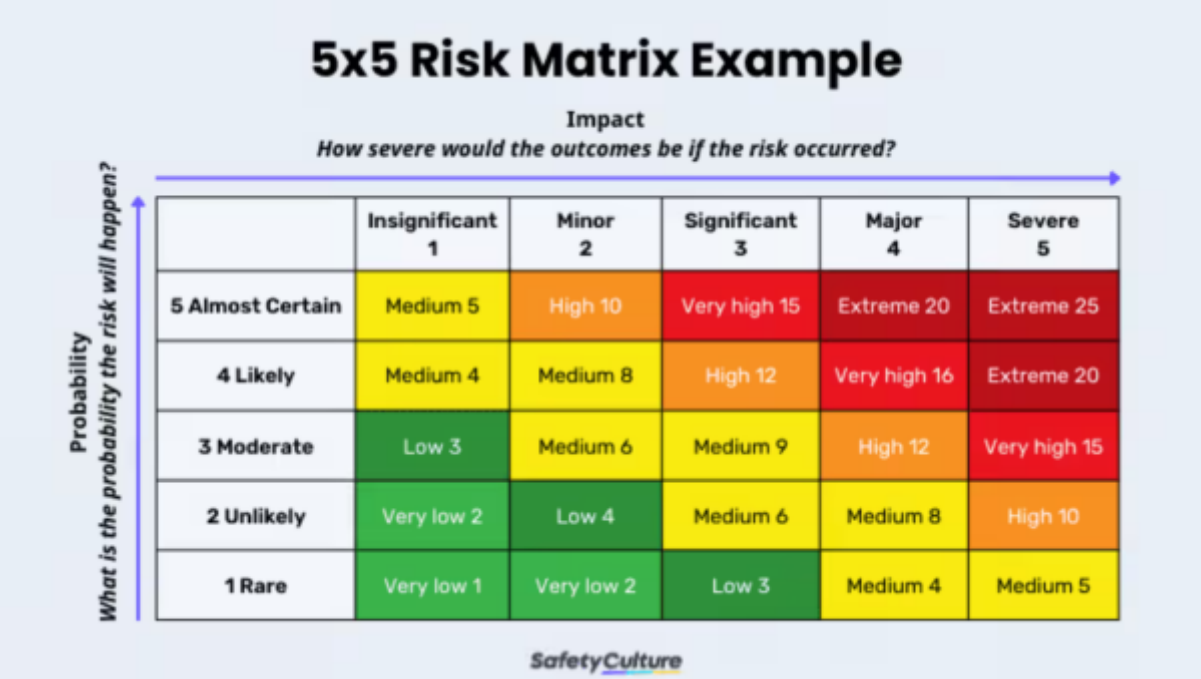


Figure 2: Risk analysis matrix **[1]**

Table 7 shows a risk assessment of the system. Here is a definition of the probability and impact levels.

The probability levels are defined as:

- 5: Almost certain
  * 4: Likely
  * 3: Moderate
  * 2: Unlikely
  * 1: Rare

The impact levels are defined as:

- 5: Severe
  * 4: Major
  * 3: Significant
  * 2: Minor
  * 1: Insignificant

Risk levels are calculated by multiplying probability by impact and are interpreted as:

- 1–4: Acceptable
  * 5–9: Adequate
  * 10–16: Tolerable
  * 17–25: Unacceptable

Table 7: Risk Analysis

Risk	Probability	Impact	Risk level	Response	Risk handling
Hardware integration issues (LEDs, sensors, ESP32 not working together)	3	4	12 - Tolerable	Mitigate	Perform early prototyping and incremental testing of all electronic components
Tablet/app connectivity problems (communication between tablet and system fails)	3	4	12 - Tolerable	Mitigate	Use reliable communication protocols and test integration regularly
User interface usability issues (confusing booking or controls)	3	3	9 - Adequate	Mitigate	Conduct user testing and iterate UI design based on feedback
Structural instability of the capsule (design or assembly weaknesses)	2	5	10 - Tolerable	Mitigate	Validate structure through simulations and reinforce critical joints
Delays in material delivery or unavailable components	2	3	6 - Adequate	Transfer	Identify alternative suppliers and order materials early
Time management issues within the team	3	3	9 - Adequate	Mitigate	Establish clear deadlines and monitor progress regularly
System does not provide expected relaxation experience	2	4	8 - Adequate	Mitigate	Test lighting and sound scenarios and adjust based on user feedback
Power supply or electrical failure inside the capsule	2	5	10 - Tolerable	Mitigate	Ensure proper circuit design and include safety measures (fuses, regulators)
Overcomplication of features leading to unfinished implementation	3	4	12 - Tolerable	Avoid	Prioritize core functionalities and reduce scope if necessary

Risk	Probability	Impact	Risk level	Response	Risk handling
Legal or safety compliance issues (indoor installation, user safety)	2	4	8 - Adequate	Mitigate	Follow safety guidelines and ensure materials and electronics meet standards

The risk analysis shows that most identified risks fall within the adequate and tolerable categories. These risks can be managed through proper planning, iterative testing, and continuous monitoring throughout the project lifecycle. No risks were classified as unacceptable, meaning the project is considered feasible within the defined scope, provided that mitigation strategies are effectively implemented.

Procurement

3.8 Procurement

Procurement is an important part of the Bloem project because the solution combines architectural materials, furniture elements, and electronic components that must be acquired from different types of suppliers. For this reason, the purchasing strategy was defined to balance cost, availability, delivery time, and reliability, while also keeping the overall concept feasible from a construction point of view. Our procurement plan is shown in Table 8.

The structural and interior elements of the capsule are mainly sourced from building-material suppliers and wood specialists. Components such as cork insulation, wooden slats, plywood boards, brackets, and adhesives are purchased from suppliers that can provide materials in the required dimensions and in relatively short lead times. Whenever possible, local or regional suppliers are preferred, since this reduces transportation effort and simplifies replacement in case of damaged or unavailable items.

The electronic subsystem follows a different procurement approach. Microcontrollers, sensors, converters, and low-cost supporting modules are acquired from specialized online suppliers, since these components are generally more affordable and easier to find through international platforms. At the same time, items such as the speaker and LED strip are sourced from retailers with faster shipping and easier purchasing conditions. Backup suppliers are also identified for the most relevant electronic elements in order to reduce the risk of delays during assembly and testing.

For the user interface, the team selected a commercial tablet that offers sufficient performance for session booking and environmental control without requiring advanced specifications. This avoids overspending on hardware while still ensuring that the interface can be demonstrated under realistic conditions.

Overall, the procurement strategy for Bloem is based on using reliable suppliers for large structural materials, specialized vendors for electronics and alternative sources whenever delivery or stock issues may arise. This mixed approach provides flexibility during implementation and supports both the physical construction of the capsule and the integration of its interactive features.

Table 8: Procurement Plan

Item	Primary Supplier	Primary Price	Primary Shipping (Days)	Backup Supplier	Backup Price	Shipping Time (Days)	Notes
Cork insulation GO4CORK	Leroy Merlin	317.79 €	1–3	Casa Peixoto	362.70 €	1–3	Main acoustic and thermal insulation material
Planed wooden slat WHITE CASQUINHA	Leroy Merlin	65.44 €	1–3	Casa Peixoto	95.85 €	0–2	Used for internal wooden framing
SPAX Screws	KuantoKusta	5.69 €	1–3	Leroy Merlin	18.99 €	0–2	Fastening elements
Hemp Granules 15	Datapixel	255.69 €	2–5	Leroy Merlin	279.72 €	1–3	Complementary insulation material
Plywood Interior Poplar B/BB	ToSize	291.30 €	3–7	Maderterraneo	390.00 €	2–5	Main shell material
Wide Square k2 L-brackets	Leroy Merlin	2.58 €	1–3	Macovex	6.00 €	0–2	Structural reinforcement
Pattex Wood Glue	Worten	6.96 €	0–2	Leroy Merlin	36.85 €	0–2	Wood adhesive
Birch plywood board (floor)	Madeiras Leiria	117.62 €	1–3	Madeiras Leiria	235.24 €	1–3	Flooring base
Plywood Poplar (door)	Maderterraneo	90.00 €	2–5	ToSize	97.10 €	2–5	Sliding door panel
Birch plywood board (seat frame)	Madeiras Leiria	117.62 €	1–3	Leroy Merlin	429.00 €	1–3	Seating structure
Tablet holder	Worten	88.71 €	0–2	Manutan	114.08 €	—	Mounting system
Soft seating pillowcase	Texland	80.16 €	1–3	Loja Tecidos	117.00 €	1–3	Upholstery fabric
Cushion filling material	100metros	116.16 €	1–3	Feira dos Tecidos	83.40 €	—	Foam filling
Hinges Door	Leroy Merlin	65.94 €	1–3	Fruugo	179.70 €	1–3	Door hinges
Outside panels (PLA)	Evolt	209.55 €	2–5	Reprap	240.00 €	—	Exterior panels
Galaxy Tab A9	Worten	159.00 €	0–2	Staples	200.00 €	0–2	Interface device
ESP32-S3 board	Mauser	13.90 €	5–10	Mauser	10.14 €	5–10	Controller
RGB LED strip	Worten	16.00 €	1–3	Botnroll	12.50 €	1–3	Lighting
MOSFET transistor	Worten	17.90 €	1–3	Mauser	11.40 €	1–3	Switching
Resistor set	Worten	11.85 €	1–3	Mauser	50.00 €	1–3	Electrical support
Red/Black Column Wire	Mauser	3.51 €	2–5	DigiKey	3.50 €	5–10	Electrical support
BH1750 sensor	DigiKey	4.00 €	5–10	Mauser	5.50 €	5–10	Light sensing
LM2596 converter	Mauser	5.72 €	5–10	DigiKey	20.22 €	5–10	Power regulation

Item	Primary Supplier	Primary Price	Primary Shipping (Days)	Backup Supplier	Backup Price	Shipping Time (Days)	Notes
12V power supply	Mauser	10.50 €	5–10	Thomann	20.90 €	5–10	Power supply
Speaker GAT-801	Mauser	28.91 €	2–5	KuantoKusta	39.67 €	1–3	Audio output
Total Estimated Cost		**2539.99 €**			**2786.73 €**		

Procurement presents significant risks in three areas: price fluctuations, delivery times, and supplier dependencies. There are sometimes substantial price differences between primary and backup suppliers that cannot be explained solely by market variations but are usually attributable to differences in packaging sizes, quality grades, or distribution channels (retail vs. B2B). Particularly notable are wood and fastening materials such as wood glue, hinges, screw sets, and individual wood panels, where prices vary by a factor of approximately 2 to 5 depending on the supplier. This creates a procurement risk, as actual unit costs depend heavily on the chosen supplier and are not consistently comparable across all sources.

In terms of time, the system is clearly segmented: local retailers such as Leroy Merlin or Worten typically deliver within 0–3 days, while specialized dealers for wood or material products tend to require 2–5 days. Electronics components sourced through distributors like Mauser or DigiKey, on the other hand, have the longest shipping times of up to 5–10 days. This creates a critical path in project planning, as microcontrollers, sensors and power components in particular can delay the entire system integration if they are not available on time.

Another risk stems from de facto single-supplier structures. Some components either have identical primary and backup suppliers or have only very limited interchangeable alternatives. This increases dependence on individual distributors and makes the system vulnerable to stockouts or delivery delays, particularly in the electronics sector.

This results in a clear procurement strategy with two modes: Under normal circumstances, the cheapest supplier is selected to minimize total costs. In time-critical phases or when bottlenecks are imminent, however, the system deliberately switches to the fastest available supplier, even if this results in higher costs. This dual strategy strikes a balance between budget efficiency and project security while reducing the risk of delays on the critical path.

Project Plan

The project is organized into one-week sprints to support an iterative and flexible development workflow. The full timeline is presented in Table 9, which serves as a structured reference for monitoring progress and ensuring alignment with the overall project goals.

Table 9: Global Sprint Plan

Sprint	Start	Finish	Status
1	26/02/2026	04/03/2026	Finished
2	05/03/2026	11/03/2026	Finished
3	12/03/2026	18/03/2026	Finished
4	19/03/2026	25/03/2026	Finished
5	26/03/2026	01/04/2026	Finished
6	02/04/2026	08/04/2026	Finished

Sprint	Start	Finish	Status
7	09/04/2026	15/04/2026	Finished
8	16/04/2026	22/04/2026	Finished
9	23/04/2026	29/04/2026	Finished
10	30/04/2026	06/05/2026	Finished
11	07/05/2026	13/05/2026	Finished
12	14/05/2026	20/05/2026	Finished
13	21/05/2026	27/05/2026	Ongoing
14	28/05/2026	03/06/2026	Planned

Our project backlog works as a roadmap for the team, helping us stay on top of all the EPS milestones. We've arranged these tasks to make sure the workflow stays consistent and that we're hitting our deadlines as we build Bloem. The detailed list of these items and their current status is provided in Table 10 below.

Table 10: Project Backlog

PBI	Title	Status
A	Define project theme	Done
B	Upload "black box" System Diagrams & Structural Drafts	Done
C	Upload List of Components and Materials (draft)	Done
D	Define Project Backlog, Global Sprint Plan & Initial Sprint Plan	Ongoing
E	Release Gantt Chart of the project	Done
F	Upload Detailed System Schematics & Structural Drawings	Done
G	Cardboard scale model of the structure	Done
H	Interim Report and Presentation	Done
I	3D model video	Ongoing
J	Final List of Materials	Done
K	Refined Interim Report (based on feedback)	Done
L	Packaging solution	Done
M	Results of the Functional Tests	Ongoing
N	Building the prototype	Ongoing
O	Final Report, Presentation, Video, Paper, Poster and Manual	Planned
P	Final Presentation, Individual Discussion and Assessment	Planned
Q	MS Teams folder upload (refined deliverables + code + drawings)	Planned

To manage our time effectively, we've broken the project down into one-week 'sprints.' This allows us to focus on specific tasks each week and ensures that we are making steady progress toward our final goals. Table 11 shows our schedule, including the duration of each task and who is responsible for leading them.

Table 11: Sprint Plan

Sprint	Task	Importance	Responsible	Involved
26/02/2026 - 04/03/2026				
1	Choose and share top-3 preferred project proposals	5	Everyone	Everyone

Sprint	Task	Importance	Responsible	Involved
05/03/2026 - 11/03/2026				
2	“Black box” System Diagrams	3	Everyone	Everyone
2	Structural Drafts	4	Carlota	Everyone
2	Write Background and Related Work chapters	3	Amalie & Timon	Everyone
2	Brainstorm other ideas inside the Smart Buildings topic	5	Everyone	Everyone
12/03/2026 - 18/03/2026				
3	Research Components and Materials	3	Everyone	Everyone
3	List of Components and Materials (initial upload)	5	Amalie & Lena	Everyone
3	Write Marketing chapters	2	Timon	Everyone
3	Improve BlackBox Diagram	2	Lena	Everyone
19/03/2026 - 25/03/2026				
4	Detailed System Schematics	5	Amalie	Everyone
4	Structural Drawings	5	Carlota	Everyone
4	Cardboard scale model of Bloem	3	Kaiko	Everyone
4	Create a flyer draft	3	Kaiko	Everyone
4	Update Material List	3	Mohammed	Everyone
4	Settle on a name and logo	4	Everyone	Everyone
4	Write Project Plan & Development chapters	2	Lena & Carlota	Everyone
26/03/2026 - 01/04/2026				
5	Reworking Schematic Drawings	4	Amalie	Everyone
5	Creating Case Study Presentation (Ethics)	3	Mohammad	Everyone
5	Creating the brand identity	4	Carlota	Everyone
5	Updating marketing brand	3	Timon	Everyone
5	Smart System HW	5	Amalie	Everyone
5	Smart System SW	5	Lena	Everyone
5	Write Risk and Procurement part of the Project Management report	4	Lena	Everyone
5	Distribute Presentation topics	3	Kai-Ko	Everyone

Sprint	Task	Importance	Responsible	Involved
02/04/2026 - 08/04/2026				
6	Aligning who presents which part	3	Everyone	Everyone
6	Working on the interim presentation	5	Everyone	Everyone
6	Refining the report	4	Everyone	Everyone
09/04/2026 - 15/04/2026				
7	Uploading the Presentation	5	Everyone	Everyone
7	Uploading the Report	5	Everyone	Everyone
7	Practising the presentation	4	Everyone	Everyone
7	Project Development	3	Carlota	Everyone
16/04/2026 - 22/04/2026				
8	Meeting regarding the electrical schematics with Luis	4	Amalie & Timon	Everyone
8	Creating the 3D model	5	Mohammad	Everyone
8	Consulting on the 3D model	3	Carlota	Everyone
8	Creating app drafts	4	Lena	Everyone
8	Refining a section of the Project Management wiki part	3	Lena	Everyone
8	Initial work on the final material list	4	Timon	Everyone
8	Creating the weekly pitch	2	Kai-Ko	Everyone
8	Creating a summary of the interim presentation meeting for the logbook	2	Everyone	Everyone
23/04/2026 - 29/04/2026				
9	Identified procurement requirements for selected materials	4	Everyone	Everyone
9	Prototype materials list	4	Kai-Ko	Everyone
9	App UI layout and navigation structure	5	Lena	Everyone
9	Designed seating platform	4	Timon & Mohammad	Everyone
9	Updated electrical circuit design (meeting Luis)	5	Amalie	Everyone
9	Focused on door mechanism (3D video)	3	Carlota	Everyone

Sprint	Task	Importance	Responsible	Involved
30/04/2026 - 13/05/2026				
10	3D model video	4	Carlota	Everyone
10	Packaging solution	4	Amalie & Timon	Everyone
10	Continued writing scientific paper	4	Timon & Amalie	Everyone
10	Developed marketing leaflet (first draft version)	3	Amalie & Lena	Everyone
10	Identified need for revision and refinement of poster and leaflet content	3	Everyone	Everyone
10	Developed scientific poster (first draft version)	4	Kai-Ko & Mohammad	Everyone
14/05/2026 - 20/05/2026				
11	Scientific Paper - Structure	2	Kai-Ko	Everyone
11	Scientific Paper - Proposed Solution	2	Timon	Everyone
11	Develop electronics for prototype	8	Amalie	Everyone
11	App development	8	Lena	Everyone
11	3D model video (doors)	8	Carlota	Everyone
11	Report (Wiki) - Prototype	3	Kai-Ko	Everyone
11	Scientific Paper - Smart Control	2	Amalie	Everyone
11	Scientific Paper - Packing	2	Amalie & Timon	Everyone
11	User Manual	5	Mohammad	Everyone
11	Scientific Paper - Conclusion	2	Everyone	Everyone
21/05/2026 - 27/05/2026				
12	Pickup materials for prototype	8	Kai-Ko	Everyone
12	Arduino development (on/off button)	8	Amalie	Everyone
12	Arduino development (green LED)	5	Amalie	Everyone
12	Integrated files into the app to connect with hardware components	8	Lena	Everyone
12	Fixed Gradle files in the app	2	Lena	Everyone
12	Navigation in the app	3	Lena	Everyone
12	Internal functions in 3D model	8	Carlota	Everyone
12	Render of the capsule	5	Carlota	Everyone

Sprint	Task	Importance	Responsible	Involved
12	Stress Analysis	5	Mohammad	Everyone
12	stress analysis - material choice	5	Mohammad	Everyone
12	stress analysis - Force choice	2	Mohammad	Everyone
12	stress analysis - Mesh & simulation	8	Mohammad	Everyone
12	Functional Tests PDF Report	5	Mohammad	Everyone
12	Installation instructions	5	Mohammad	Everyone
12	Report (Wiki) - Prototype	3	Kai-Ko	Everyone
12	Proposed solution documentation - scientific paper	5	Timon	Everyone
12	Add references to marketing	2	Timon	Everyone
12	Define KPIs for marketing programs	3	Timon	Everyone
12	Work on poster design	3	Kai-Ko	Everyone
12	Final Poster	8	Kai-Ko	Everyone
12	Copyright page in user manual	3	Mohammad	Everyone
12	Final Manual	8	Mohammad	Everyone
12	Personal Outcomes Carlota - scientific paper	1	Carlota	Everyone
12	Personal Outcomes Mohammad - scientific paper	1	Mohammad	Everyone
12	Personal Outcomes Lena - scientific paper	1	Lena	Everyone
12	Personal Outcomes Kai-Ko - scientific paper	1	Kai-Ko	Everyone
28/05/2026 - 03/06/2026				
13	Building the wooden part of the prototype	8	Timon & Kai-Ko	Everyone
13	Further work on the render of the capsule	5	Carlota	Everyone
13	Internal functions in 3D model	8	Carlota	Everyone
13	Results of the Functional Tests	8	Amalie	Everyone
13	Report (Wiki) - Prototype	3	Kai-Ko	Everyone
13	Proposed solution documentation - scientific paper	5	Timon	Everyone
13	Prototype Development - Structure - Scientific paper	3	Kai-Ko	Everyone

Sprint	Task	Importance	Responsible	Involved
13	Prototype Development - Smart Control - Scientific paper	3	Amalie	Everyone
13	Prototype Development - User Application - Scientific paper	3	Lena	Everyone
13	Personal Outcomes Lena - scientific paper	1	Lena	Everyone
13	Personal Outcomes Kai-Ko - scientific paper	1	Kai-Ko	Everyone
04/06/2026 - 10/06/2026				
14	Set up electronics for the prototype using the new ESP32	8	Amalie	Everyone
14	Add an image of our proposed solution to the scientific paper	2	Timon	Everyone
14	Add the sides (made of cardboard) to the prototype	5	Kai-Ko	Everyone
14	Generate an image of the capsule in a real-world setting	1	Timon	Everyone
14	Review all deliverables (and possibly update images)	5	Carlota	Everyone
14	Begin working on the video for Bloem	13	Timon	Everyone
14	Add music to the app	5	Lena	Everyone
14	Move daily meeting to Jira	2	Amalie	Everyone
14	Move retrospectives to Jira	2	Amalie	Everyone
14	Rework the Procurement part in Wiki	3	Timon	Everyone
14	Rework user manual	3	Mohammad	Everyone
14	Rework stress test and add to Wiki (with pictures)	5	Mohammad	Everyone
14	Rework the quality chapter in project management	3	Lena	Everyone
14	Scientific Paper - stress test	3	Mohammad	Everyone
14	3D model - electrical components (Tablet,Speaker,ESP32)	8	Mohammad	Everyone
14	3D model - modeling wire connection to the LED	5	Mohammad	Everyone
14	3D model - Motion Study	13	Mohammad	Everyone
14	Final 3D Model video edit caption and audio	13	Mohammad	Everyone

Figure 3 provides a visual overview of our complete schedule. It allows us to track the duration of each task at a glance and see how they fit together over the semester, making it easier to manage

the long-term deadlines for Bloem.

Team 2 - Smart Buildings				
MAIN TASK	SUBTASK	START	PLANNED END	REAL END
Project Foundation & Conceptualization	User Research	2026-03-01	2026-03-21	
	Brainstorming capsule features	2026-03-01	2026-03-18	
	Creating "Black Box" system diagrams	2026-03-08	2026-03-11	
	Creating initial structural designs	2026-03-08	2026-03-11	
Technical Planning & Prototyping	Component Research & Material Selection	2026-03-12	2026-03-18	
	Project Backlog & Sprint Planning & Gantt Chart	2026-03-19	2026-03-21	
	Detailed System Schematics	2026-03-19	2026-03-25	
	Creating Cardboard Scale Model	2026-03-19	2026-03-25	
Mid-Term Reporting & Presentation	Writing Interim Report	2026-03-16	2026-04-12	
	Design & Record 3D Model Video	2026-04-13	2026-04-22	
	Preparing Interim Presentation	2026-04-01	2026-04-12	
Industrialization & Optimization	Creating Final Material List	2026-04-23	2026-04-29	
	Refining Interim Report	2026-04-13	2026-05-02	
	Designing Packaging Solution	2026-05-03	2026-05-13	
Functional Testing & Final Deliverables	Assembling the Prototype	2026-06-14	2026-06-24	
	Conducting Functional Tests	2026-05-14	2026-05-27	
	Final Report, Presentation, Video, Paper, Poster and Manual	2026-05-14	2026-06-13	
Constant Reporting	Creating Weekly Pitches for Project Meetings	2026-02-25	2026-06-17	
	Distributing tasks and updating Jira	2026-02-25	2026-06-17	

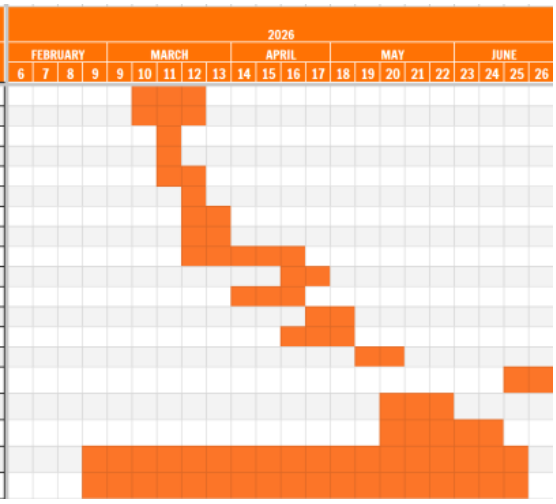


Figure 3: Gantt chart

Sprint Outcomes

Sprint 1

Table 12 shows the outcome of sprint 1.

Table 12: Sprint 1 Overview

Sprint	Task	Duration	Responsible	Involved
26/02/2026 - 04/03/2026				
1	Choose and share top-3 preferred project proposals	5	Everyone	Everyone

Sprint 1 Summary:

Main Achievements:

- Held our first team meetings to discuss project interests.
- Researching and ranking our top 3 project choices for the supervisors.
- Agreed on the initial vision for a dehumidifier structure.

Progress Check: 100% of the planned work for this week is finished.

Workload Stats:

- **Tasks Planned:** 1
- **Tasks Finished:** 1

Unfortunately up until sprint 11 we were no correctly assigning points to our tasks as well as marking them as done evenly throughout the sprint. For those reasons the burndown charts do not show how we were working correctly, so we will not be including them in the outcomes.

Sprint 2

Table 13 shows the outcome of sprint 2.

Table 13: Sprint 2 Overview

Sprint	Task	Duration	Responsible	Involved
05/03/2026 - 11/03/2026				
2	“Black box” System Diagrams	3	Everyone	Everyone
2	Structural Drafts	4	Carlota	Everyone
2	Brainstorming Smart Building concepts	3	Everyone	Everyone
2	Write Background and Related Work chapters	4	Amalie & Timon	Everyone

Sprint 2 Summary:

What we got done:

- Explored different “Smart Building” ideas and officially chose the wellness capsule.
- Developed the “Black Box” diagrams to map out how the sensors and systems will interact.
- Carlota started the first structural sketches to visualize the egg-shaped design.
- Amalie and Timon began writing the Background and Related Work sections for the report to provide the research foundation for our project.

Current Status: All 4 tasks for this sprint were completed on time.

Workload Summary:

- **Planned Tasks:** 4
- **Completed Tasks:** 4

Sprint 3

Table 14 shows the outcome of sprint 3.

Table 14: Sprint 3 Overview

Sprint	Task	Duration	Responsible	Involved
12/03/2026 - 18/03/2026				
3	Research Components and Materials	4	Everyone	Everyone
3	List of Components and Materials (initial upload)	2	Amalie & Lena	Everyone
3	Write Marketing chapters	2	Timon	Everyone
3	Improve BlackBox Diagram	2	Lena	Everyone

Sprint 3 Summary:

Tasks Completed:

- The whole team researched sustainable materials (like cork and hemp) and technical components to ensure the capsule meets our wellness goals.
- Amalie and Lena compiled the initial material list and uploaded it to the project wiki.
- Timon drafted the Marketing chapters.
- Lena refined the Black Box diagram based on the new research and feedback from our supervisors.

Status Update: 100% of tasks were finished by the end of the week.

Efficiency Metrics:

- **Tasks in the plan:** 4
- **Tasks carried out:** 4

Sprint 4

Table 15 shows the outcome of sprint 4.

Table 15: Sprint 4 Overview

Sprint	Task	Duration	Responsible	Involved
19/03/2026 - 25/03/2026				
4	Detailed System Schematics	5	Amalie	Everyone
4	Structural Drawings	5	Carlota	Everyone
4	Cardboard scale model of Bloem	3	Kaiko	Everyone
4	Create a flyer draft	3	Kaiko	Everyone
4	Update Material List	3	Mohmmed	Everyone
4	Settle on a name and logo	2	Everyone	Everyone
4	Write Project Plan & Development chapters	4	Lena & Carlota	Everyone

Sprint 4 Summary:

Key Results for this period:

- Officially rebranded the project to **Bloem** and finalized the core logo concept to match our “nature meets wellness” theme.
- Kaiko built the first physical scale model using cardboard to test the dimensions and the egg-shaped curve of the capsule.
- Amalie and Carlota produced the detailed technical schematics and structural drawings needed for the upcoming prototype phase.
- We started working on the Project Plan and Development chapters.
- Updated our material list and created a first draft of the marketing flyer to promote Bloem's benefits.

Current Status: Sprint successfully completed with 100% of tasks finished.

Effort Breakdown:

- **Tasks in the plan:** 7
- **Tasks carried out:** 7

Sprint 5

Table 16 shows the outcome of sprint 5.

Table 16: Sprint 5 Overview

Sprint	Task	Duration	Responsible	Involved
26/03/2026 - 01/04/2026				
5	Reworking Schematic Drawings	4	Amalie	Everyone
5	Creating Case Study Presentation (Ethics)	3	Mohammad	Everyone
5	Creating the brand identity	4	Carlota	Everyone
5	Updating marketing brand	3	Timon	Everyone
5	Smart System HW	5	Amalie	Everyone
5	Smart System SW	5	Lena	Everyone
5	Write Risk and Procurement part of the Project Management report	4	Lena	Everyone
5	Distribute Presentation topics	3	Kai-Ko	Everyone

Sprint 5 Summary:

Main Achievements:

- Reworked the technical schematic drawings and advanced both the Smart System HW and SW components.
- Developed the Ethics Case Study presentation and successfully distributed presentation topics among the team.
- Wrote and finalized the Risk and Procurement sections for the Project Management report.

Progress Check: 100% of the planned work for this week is finished.

Effort Breakdown:

- **Tasks Planned:** 8
- **Tasks Finished:** 8

Sprint 6

Table 17 shows the outcome of sprint 6.

Table 17: Sprint 6 Overview

Sprint	Task	Duration	Responsible	Involved
02/04/2026 - 08/04/2026				
6	Aligning who presents which part	3	Everyone	Everyone
6	Working on the interim presentation	5	Everyone	Everyone

Sprint	Task	Duration	Responsible	Involved
6	Refining the report	4	Everyone	Everyone

Sprint 6 Summary:

Main Achievements:

- Divided the interim presentation content between the team members.
- Refined and improved the report based on the current project progress.
- Reviewed the report and presentation together to maintain consistency between both deliverables.

Progress Check: 100% of the planned work for this week is finished.

Effort Breakdown:

- **Tasks Planned:** 3
- **Tasks Finished:** 3

Sprint 7

Table 18 shows the outcome of sprint 7.

Table 18: Sprint 7 Overview

Sprint	Task	Duration	Responsible	Involved
09/04/2026 - 15/04/2026				
7	Uploading the Presentation	5	Everyone	Everyone
7	Uploading the Report	5	Everyone	Everyone
7	Practising the presentation	4	Everyone	Everyone
7	Project Development	3	Carlota	Everyone

Sprint 7 Summary:

Main Achievements:

- Uploaded the interim presentation and report for submission.
- Practised the presentation as a team to improve timing and transitions.

Progress Check: 100% of the planned work for this week is finished.

Effort Breakdown:

- **Tasks Planned:** 4
- **Tasks Finished:** 4

Sprint 8

Table 19 shows the outcome of sprint 8.

Table 19: Sprint 8 Overview

Sprint	Task	Duration	Responsible	Involved
16/04/2026 - 22/04/2026				
8	Meeting regarding the electrical schematics with Luis	4	Amalie & Timon	Everyone
8	Creating the 3D model	5	Mohammad	Everyone
8	Consulting on the 3D model	3	Carlota	Everyone
8	Creating app drafts	4	Lena	Everyone
8	Refining a section of the Project Management wiki part	3	Lena	Everyone
8	Initial work on the final material list	4	Timon	Everyone
8	Creating the weekly pitch	2	Kai-Ko	Everyone
8	Creating a summary of the interim presentation meeting for the logbook	2	Everyone	Everyone

Sprint 8 Summary:

Main Achievements:

- Held a meeting about the electrical schematics to clarify the technical requirements of the system.
- Continued development of the 3D model and reviewed it through team consultation.
- Created initial app drafts to define the visual direction and interaction flow of the Bloem application.
- Started preparing the final material list for the project.

Progress Check: 100% of the planned work for this week is finished.

Effort Breakdown:

- **Tasks Planned:** 8
- **Tasks Finished:** 8

Sprint 9

Table 20 shows the outcome of sprint 9.

Table 20: Sprint 9 Overview

Sprint	Task	Duration	Responsible	Involved
23/04/2026 - 29/04/2026				
9	Identified procurement requirements for selected materials	4	Everyone	Everyone
9	Prototype materials list	4	Kai-Ko	Everyone
9	App UI layout and navigation structure	5	Lena	Everyone
9	Designed seating platform	4	Timon & Mohammad	Everyone
9	Updated electrical circuit design (meeting Luis)	5	Amalie	Everyone
9	Focused on door mechanism (3D video)	3	Carlota	Everyone

Sprint 9 Summary:

Main Achievements:

- Created and organized the prototype materials list.
- Developed the app UI layout and planned the navigation structure for the Bloem application.
- Updated the electrical circuit design after consultation and feedback.
- Continued development of the door mechanism and prepared material for the 3D video.

Progress Check: 100% of the planned work for this week is finished.

Effort Breakdown:

- **Tasks Planned:** 6
- **Tasks Finished:** 6

Sprint 10

Table 21 shows the outcome of sprint 10.

Table 21: Sprint 10 Overview

Sprint	Task	Duration	Responsible	Involved
30/04/2026 - 13/05/2026				
10	3D model video	4	Carlota	Everyone
10	Packaging solution	4	Amalie & Timon	Everyone
10	Continued writing scientific paper	4	Timon & Amalie	Everyone
10	Developed marketing leaflet (first draft version)	3	Amalie & Lena	Everyone
10	Identified need for revision and refinement of poster and leaflet content	3	Everyone	Everyone
10	Developed scientific poster (first draft version)	4	Kai-Ko & Mohammad	Everyone

Sprint 10 Summary:

Main Achievements:

- Developed the packaging solution and explored how the product could be transported or delivered.
- Continued writing the scientific paper and improving its technical content.
- Reviewed the poster and leaflet content and identified areas that needed refinement.

Progress Check: 100% of the planned work for this sprint is finished.

Effort Breakdown:

- **Tasks Planned:** 6
- **Tasks Finished:** 6

Sprint 11

Table 22 shows the outcome of sprint 11.

Table 22: Sprint 11 Overview

Sprint	Task	Duration	Responsible	Involved
14/05/2026 - 20/05/2026				
11	Scientific Paper - Structure	2	Kai-Ko	Everyone
11	Scientific Paper - Proposed Solution	2	Timon	Everyone
11	Develop electronics for prototype	8	Amalie	Everyone
11	App development	8	Lena	Everyone
11	3D model video (doors)	8	Carlota	Everyone
11	Report (Wiki) - Prototype	3	Kai-Ko	Everyone
11	Scientific Paper - Smart Control	2	Amalie	Everyone
11	Scientific Paper - Packing	2	Amalie & Timon	Everyone
11	User Manual	5	Mohammad	Everyone
11	Scientific Paper - Conclusion	2	Everyone	Everyone

Sprint 11 Summary:

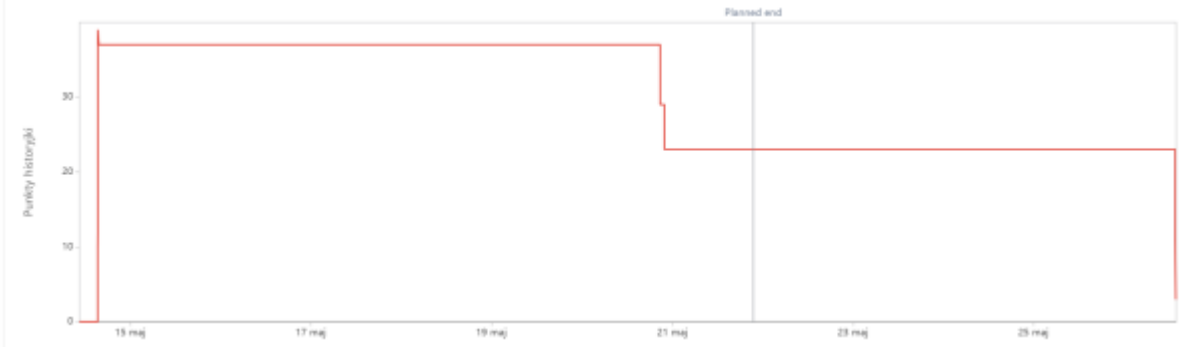
Main Achievements:

- Continued the development of the scientific paper by working on the structure, proposed solution, smart control, packing, and conclusion sections.
- Developed the electronics for the prototype, focusing on the smart system implementation.
- Added and refined the prototype section in the project wiki report.
- Started preparing the user manual for the final deliverables.

Progress Check: 100% of the planned work for this week is finished.

Effort Breakdown:

- **Tasks Planned:** 10
- **Tasks Finished:** 10



In this sprint we can finally see a somewhat correct burndown chart. The sprint began with a commitment of 37 story points, but the burndown chart shows that progress was logged primarily in large batches at the end of the cycle rather than steadily.

Sprint 12

Table 23 shows the outcome of sprint 12.

Table 23: Sprint 12 Overview

Sprint	Task	Duration	Responsible	Involved
21/05/2026 - 27/05/2026				
12	Pickup materials for prototype	8	Kai-Ko	Everyone
12	Arduino development (on/off button)	8	Amalie	Everyone
12	Arduino development (green LED)	5	Amalie	Everyone
12	Integrated files into the app to connect with hardware components	8	Lena	Everyone
12	Fixed Gradle files in the app	2	Lena	Everyone
12	Navigation in the app	3	Lena	Everyone
12	Internal functions in 3D model	8	Carlota	Everyone
12	Render of the capsule	5	Carlota	Everyone
12	Stress Analysis	5	Mohammad	Everyone
12	Stress analysis - material choice	5	Mohammad	Everyone
12	Stress analysis - Force choice	2	Mohammad	Everyone
12	stress analysis - Mesh & simulation	8	Mohammad	Everyone
12	Functional Tests PDF Report	5	Mohammad	Everyone
12	Installation instructions	5	Mohammad	Everyone
12	Report (Wiki) - Prototype	3	Kai-Ko	Everyone
12	Proposed solution documentation - scientific paper	5	Timon	Everyone
12	Add references to marketing	2	Timon	Everyone
12	Define KPIs for marketing programs	3	Timon	Everyone
12	Work on poster design	3	Kai-Ko	Everyone
12	Final Poster	8	Kai-Ko	Everyone
12	Copyright page in user manual	3	Mohammad	Everyone
12	Final Manual	8	Mohammad	Everyone
12	Personal Outcomes Carlota - scientific paper	1	Carlota	Everyone
12	Personal Outcomes Mohammad - scientific paper	1	Mohammad	Everyone
12	Personal Outcomes Lena - scientific paper	1	Lena	Everyone
12	Personal Outcomes Kai-Ko - scientific paper	1	Kai-Ko	Everyone

Sprint 12 Summary:

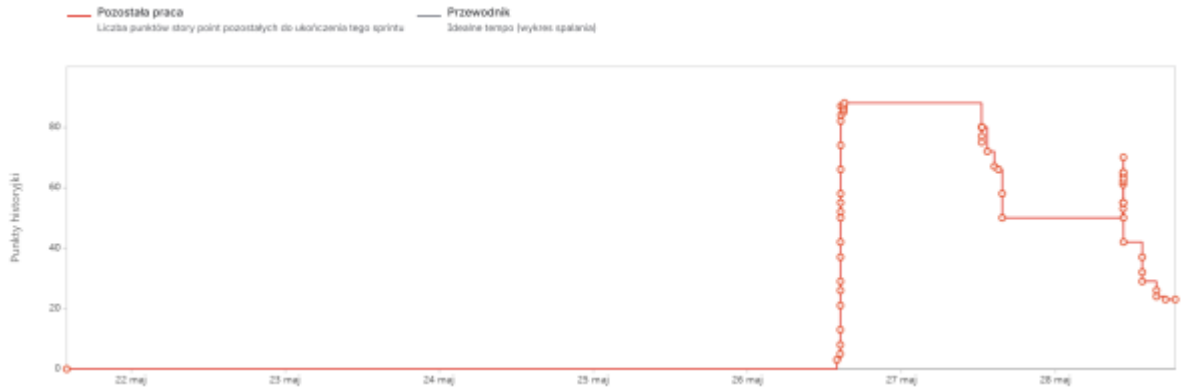
Main Achievements:

- Collected the required materials for the prototype.
- Continued Arduino development, including the on/off button and LED functionality.
- Integrated app files needed to connect the application with hardware components.
- Completed stress analysis work, including material choice, force choice, mesh setup, and simulation.
- Prepared functional testing documentation and installation instructions.
- Worked on the poster design and completed the final poster.

Progress Check: 100% of the planned work for this week is finished.

Effort Breakdown:

- **Tasks Planned:** 26
- **Tasks Finished:** 26



For this sprint, we improved our workflow by breaking down large deliverables into smaller, more precise Jira tasks. This approach made it much easier to distribute and manage our massive 116-point workload. Although the burndown chart still shows a late drop-off due to batch-updating task statuses, this detailed tracking ensured majority of the final project components were completed successfully before the deadline.

Sprint 13

Table 24 shows the outcome of sprint 13.

Table 24: Sprint 13 Overview

Sprint	Task	Duration	Responsible	Involved
28/05/2026 - 03/06/2026				
13	Building the wooden part of the prototype	13	Timon	Everyone
13	Internal functions in 3D model	8	Carlota	Everyone
13	Results of the Functional Tests	8	Amalie	Everyone
13	Proposed solution documentation - scientific paper	5	Timon	Everyone
13	Render of the capsule	5	Carlota	Everyone
13	Report (Wiki) - Prototype	3	Kai-Ko	Everyone
13	Prototype Development - Structure - Scientific paper	3	Kai-Ko	Everyone
13	Prototype Development - Smart Control - Scientific paper	3	Amalie	Everyone
13	Prototype Development - User Application - Scientific paper	3	Lena	Everyone
13	Personal Outcomes Lena - scientific paper	1	Lena	Everyone
13	Personal Outcomes Kai-Ko - scientific paper	1	Kai-Ko	Everyone

Sprint 13 Summary:

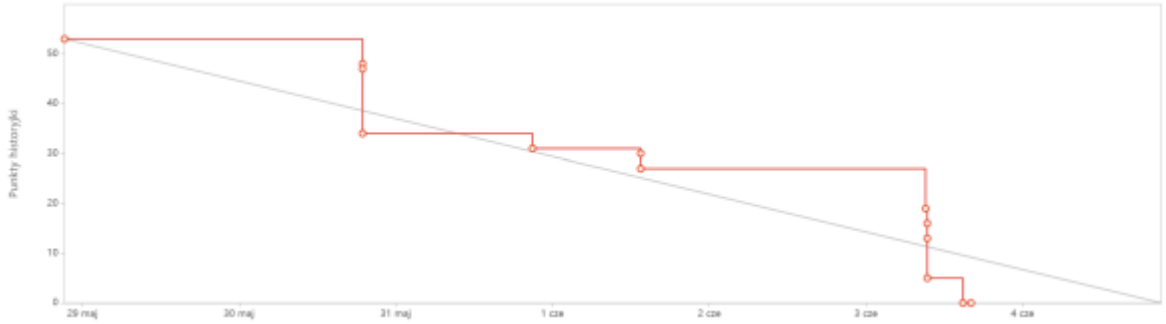
Main Achievements:

- Successfully built and assembled the wooden structural components of the prototype.
- Finalized the 3D model's internal functions and generated high-quality renders of the capsule.
- Executed and documented the results of the hardware and software functional tests.
- Made significant progress on the scientific paper, drafting sections for the proposed solution, structure, smart control, and user application.
- Updated the prototype section of the Wiki report and completed the individual personal outcome papers for team members.

Progress Check: 100% of the planned work for this week is finished.

Effort Breakdown:

- **Tasks Planned:** 11
- **Tasks Finished:** 11



This burndown chart demonstrates a highly improved and much more steady progress tracking across a workload of 53 story points. Instead of a single massive drop at the end, the red line shows a consistent step-down pattern that closely tracks the ideal grey guideline throughout the sprint.

Sprint 14

Table 25 shows the outcome of sprint 14.

Table 25: Sprint 14 Overview

Sprint	Task	Duration	Responsible	Involved
04/06/2026 - 10/06/2026				
14	Set up electronics for the prototype using the new ESP32	8	Amalie	Everyone
14	Add an image of our proposed solution to the scientific paper	2	Timon	Everyone
14	Add the sides (made of cardboard) to the prototype	5	Kai-Ko	Everyone
14	Generate an image of the capsule in a real-world setting	1	Timon	Everyone
14	Review all deliverables (and possibly update images)	5	Carlota	Everyone
14	Begin working on the video for Bloem	13	Timon	Everyone

Sprint	Task	Duration	Responsible	Involved
14	Add music to the app	5	Lena	Everyone
14	Move daily meeting to Jira	2	Amalie	Everyone
14	Move retrospectives to Jira	2	Amalie	Everyone
14	Rework the Procurement part in Wiki	3	Timon	Everyone
14	Rework user manual	3	Mohammad	Everyone
14	Rework stress test and add to Wiki (with pictures)	5	Mohammad	Everyone
14	Rework the quality chapter in project management	3	Lena	Everyone
14	Scientific Paper - stress test	3	Mohammad	Everyone
14	3D model - electrical components (Tablet,Speaker,ESP32)	8	Mohammad	Everyone
14	3D model - modeling wire connection to the LED	5	Mohammad	Everyone
14	3D model - Motion Study	13	Mohammad	Everyone
14	Final 3D Model video edit caption and audio	13	Mohammad	Everyone

Sprint 14 Summary:

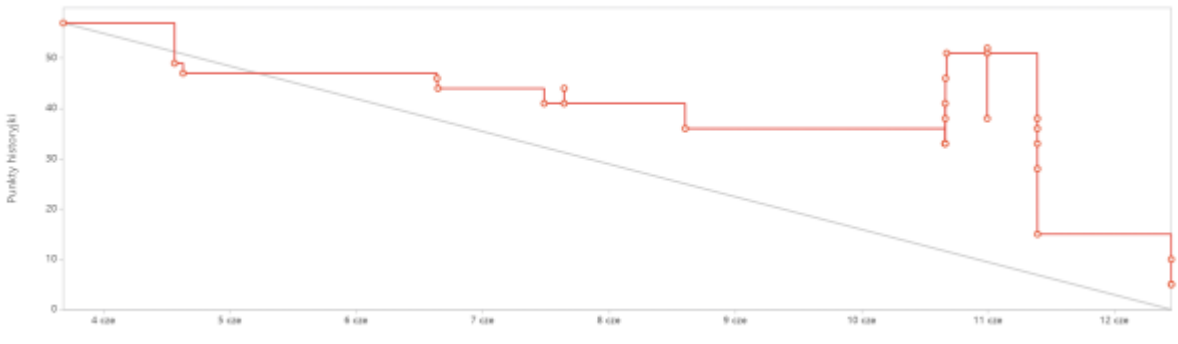
Main Achievements:

- Assembled the cardboard side panels.
- Considerably advanced the 3D modeling workflow, completing the electrical component modeling, LED wire connections, motion studies, and the final 3D model video with captions and audio.
- Improved project management tracking by fully migrating daily meetings and retrospectives into Jira.
- Reviewed and reworked key documentation, heavily updating the Procurement, Quality, and Stress Test sections on the Wiki, alongside revising the User Manual.
- Enhanced the Bloem mobile application by successfully integrating music features.

Progress Check: 100% of the planned work for this week is finished.

Effort Breakdown:

- **Tasks Planned:** 18
- **Tasks Finished:** 18



This sprint's burndown chart begins with an initial commitment of 56 story points and shows steady, incremental progress during the first half of the week. Around June 11th, there is a clear scope increase where new tasks were added to the sprint, causing the remaining work line to jump back up above 50 points. Despite this significant late addition, the team successfully burned down all

remaining points to close the sprint on time.

Sprint Evaluations

Sprint 1 Evaluation

In the first sprint, the team focused on getting organized. We chose our initial topic and attended the introduction sessions. It was mostly about figuring out how we would work together and getting the basic tools ready. The reflection is shown in Table 26.

Table 26: Sprint 1 reflection

Aspect	Reflection
Positive	Good teamwork and high motivation for starting the project.
Negative	More time could have been spent on exploring different project ideas in the beginning, to avoid changing direction later.
Ideas	Focus on the ideation workshop to improve how we formulate problems and evaluate possible solutions.
Actions	—

Sprint 2 Evaluation

During this sprint, we did a deep dive into Smart Buildings and officially decided to create the wellness capsule. We started on the first structural drawings and the Black Box diagrams to see how it would all work. We also began the first research chapters for the report. The reflection is shown in Table 27.

Table 27: Sprint 2 reflection

Aspect	Reflection
Positive	Settling on the wellness capsule idea. The team has a clear goal. We have focused on how the problem of stress can be solved. A lot of different ideas on design and functions.
Negative	Challenging to define the project while the design is still changing. Deliverables must also be handed in while the project is being defind.
Ideas	—
Actions	Ask for guidance from the project supervisor.

Sprint 3 Evaluation

Sprint 3 was all about research. We looked into sustainable materials to see what would work best. While the marketing chapters were being drafted, we focused on refining the system. We also uploaded our first official list of components. The reflection is shown in Table 28.

Table 28: Sprint 3 reflection

Aspect	Reflection
Positive	Good progress on the marketing part of the report and solid first drafts of the drawing for the project.
Negative	Material research was not detailed or structured enough.
Ideas	Revisit the concept in a more structured research phase, focusing on design, size, functionality, and materials before final decisions.
Actions	List all capsule functions and refine the concept.

Sprint 4 Evaluation

This was a big week for us. We officially rebranded to Bloem, finalized the logo and built a physical cardboard model to check the scale. We also did the detailed technical drawings and worked on the “Project Plan and Development chapters” to document our progress. The reflection is shown in Table 29.

Table 29: Sprint 4 reflection

Aspect	Reflection
Positive	We settled on a name and branding decisions after a long time of debating. The first prototype successfully convinced stakeholders.
Negative	The workload for the drawing part was very high and we should have planned to start it earlier.
Ideas	Improve future planning by estimating workload hours in more detail, distributing tasks more evenly across the team, using Jira more actively, and recalculating workload for upcoming tasks.
Actions	Recalculate workload for future tasks and improve task distribution using Jira.

Sprint 5 Evaluation

Sprint 5 showed strong progress in the physical design and planning of the capsule, but highlighted that the electrical system and integration still need clearer definition and further development before the interim milestone. The reflection is shown in Table 30.

Table 30: Sprint 5 Reflection

Aspect	Reflection
Positive	Detailed structural drawings were completed, and the capsule shape became more clear. Material layers and internal components were selected. Jira planning for the interim deadline was improved, and both the ethical scandal presentation and “interim” presentation were completed.
Negative	Electrical implementation is still not defined. Technical decisions are still pending.
Ideas	Develop a clearer electronic system architecture, define communication between electrical components, and make a plan for implementation.
Actions	Continue developing electrical schematics, finalize the integration concept for electronics, and prepare remaining tasks for the interim milestone.

Sprint 6+7 Evaluation

In sprint 6+7 we worked on the interim presentation and report completion, but highlighted that software development and app functionality definition are still missing and must be prioritised going forward. The reflection is shown in Table 31.

Table 31: Sprint 6+7 Reflection

Aspect	Reflection
Positive	Interim presentation preparation progressed efficiently with clear prioritization of key topics. The interim report was completed, including ethics, project management, and design solution chapters.

Aspect	Reflection
Negative	Software development had not yet started, and app functionalities remain undefined. The prototype implementation plan lacks detail.
Ideas	Define core functionalities of the app before adding advanced features, and creating a structured workflow for the prototype.
Actions	Start app development, define user functionalities and software architecture, and plan the prototype construction process in more detail.

Sprint 8 Evaluation

Sprint 8 improved technical developing after schematics review with Luis, and material list completion. 3D integration still require further development. The reflection is shown in Table 32.

Table 32: Sprint 8 Reflection

Aspect	Reflection
Positive	Meeting with Luis regarding the electrical schematics was productive, and the final material list was clarified and completed.
Negative	Errors were identified in the electrical schematics, the door mechanism design is still incomplete, and the 3D model lacks detailed mechanical integration.
Ideas	Develop multiple door mechanism concepts before finalizing. Integrate electrical components in the 3D model and improve internal structure visualization.
Actions	Correct schematic errors, continue refining the 3D model, and work on the door mechanism.

Sprint 9 Evaluation

Sprint 9 shows strong progress in system design and integration (door mechanism, seating, lighting, and app layout). The reflection is shown in Table 33.

Table 33: Sprint 9 Reflection

Aspect	Reflection
Positive	Door mechanism integration was further developed, a ceiling-mounted speaker solution was identified, the lighting concept was improved with the placement of the LED strip, the tablet mounting solution was finalized, the seating design and comfort features were defined, and an initial app layout was created.
Negative	Procurement of materials is not yet coordinated, app functionalities are still under development, and some mechanical integration details remain unresolved.
Ideas	Test seating dimensions.
Actions	Continue app implementation.

Sprint 10 Evaluation

Sprint 10 reflects continued progress in packaging, 3D modeling, and scientific documentation, but also highlights further work on the deliverables. The reflection is shown in Table 34.

Table 34: Sprint Reflection

Aspect	Reflection
Positive	Packaging solution development progressed, 3D model refinement continued, the scientific paper introduction was completed, and initial versions of the scientific poster and leaflet were created.
Negative	The door mechanism is still not working, the poster and leaflet still require refinement, and remaining scientific paper sections are unfinished.
Ideas	Explore alternative door opening concepts, improve visual consistency across poster and leaflet, and divide paper sections among team members for efficiency.
Actions	Find a solution for the door opening concepts.

Sprint 11 Evaluation

In sprint 11 we had strong overall progress in technical development, design, packaging, and documentation, but still have challenges with the door mechanism. And Jira workflow clarity that still need to be resolved. The reflection is shown in Table 35.

Table 35: Sprint Reflection

Aspect	Reflection
Positive	Progress technical development and 3D model, improved structural design (wooden ribs, layered walls, interior detailing), initial packaging concept developed (modular flat-pack for curved geometry), good progress on the scientific paper (solution, structure, packaging, conclusion), improved poster and marketing leaflet layout/content, and a useful meeting with the project management supervisor on Jira workflow.
Negative	The door mechanism still needs work and the Jira workflow still lacks structure and tracking.
Ideas	Explore alternative door concepts (hinged, segmented, foldable), focus on Jira, define clearer “definition of done” for tasks.
Actions	Redesign the door mechanism, finalize 3D model structure and interior and complete scientific paper sections.

Sprint 12 Evaluation

Sprint 12 shows progress on app and hardware integration, while still needing completion of scientific writing, rendering development, and improved coordination between team deliverables. The reflection is shown in Table 36.

Table 36: Sprint 12 Reflection

Aspect	Reflection
Positive	Strong progress on 3D model and structural refinement, successful stress analysis, steady app development, and completion of key documentation and marketing deliverables.
Negative	Scientific paper is still incomplete in parts, rendering is in early development, and documentation coordination is slightly fragmented across the team.
Ideas	Improve writing on the scientific paper across the team.
Actions	Complete scientific paper, finalize rendering and complete app–hardware integration.

Sprint 13 Evaluation

Sprint 13 shows strong overall progress in scientific writing, modeling, and prototype development, but is constrained by materials for the prototype. The reflection is shown in Table 37.

Table 37: Sprint 13 Reflection

Aspect	Reflection
Positive	Major progress on the scientific paper, successful integration of internal functions in the 3D model, prototype construction started, functional tests completed, rendering progress made, and an alternative ESP32 solution was secured to reduce risk.
Negative	ESP32 availability issues, material delays affecting prototype construction.
Ideas	Improve early material planning and introduce integration checkpoints.
Actions	Review scientific paper, continue prototype construction, complete rendering and start video production, finalize integration testing, acquire missing materials.

Sprint 14 Evaluation

Sprint 14 shows strong final progress across documentation, design, and prototype development, with most major deliverables completed. The reflection is shown in Table 38.

Table 38: Sprint 14 Reflection

Aspect	Reflection
Positive	The scientific paper was submitted, the final 3D model was completed, many loose ends were finalized, the final image of Bloem was added to all communication materials, and the prototype is now far along.
Negative	There is not much motivation left at this stage of the project.
Ideas	Focus on completing the last remaining tasks efficiently as a team.
Actions	A dedicated day has been scheduled in the next sprint to practice the upcoming presentation.

Summary

This chapter showed how we kept the Bloem project organized from the very first week. By using tools like Jira and a Gantt chart, we were able to map out a clear timeline and make sure everyone knew their roles. Breaking the semester into weekly sprints was really helpful because it allowed us to stay on top of the workload and adjust our plans as we moved from brainstorming to technical design.

Throughout these first four weeks, the team successfully navigated the shift from a broad “Smart Building” concept to the specific Bloem wellness capsule. We've now reached a point where we have a solid technical foundation, including detailed drawings and a physical cardboard scale model.

With the project management and initial planning now established, the following chapter will focus on our Marketing Plan and how we intend to position Bloem in the wellness market.

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[1] Patricia Guevara, April 2026. A Guide to Understanding 5x5 Risk Assessment Matrix.

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