**Deliverable E – Project Schedule and Cost**

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25th october 2024

Abstract

This document addresses the planning and scheduling of the tasks required for the development of our three prototypes for our project. It also includes a thorough test plans for our first prototyping phase. Additionally, it provides a breakdown of the components required for our project along with a detailed cost analysis.

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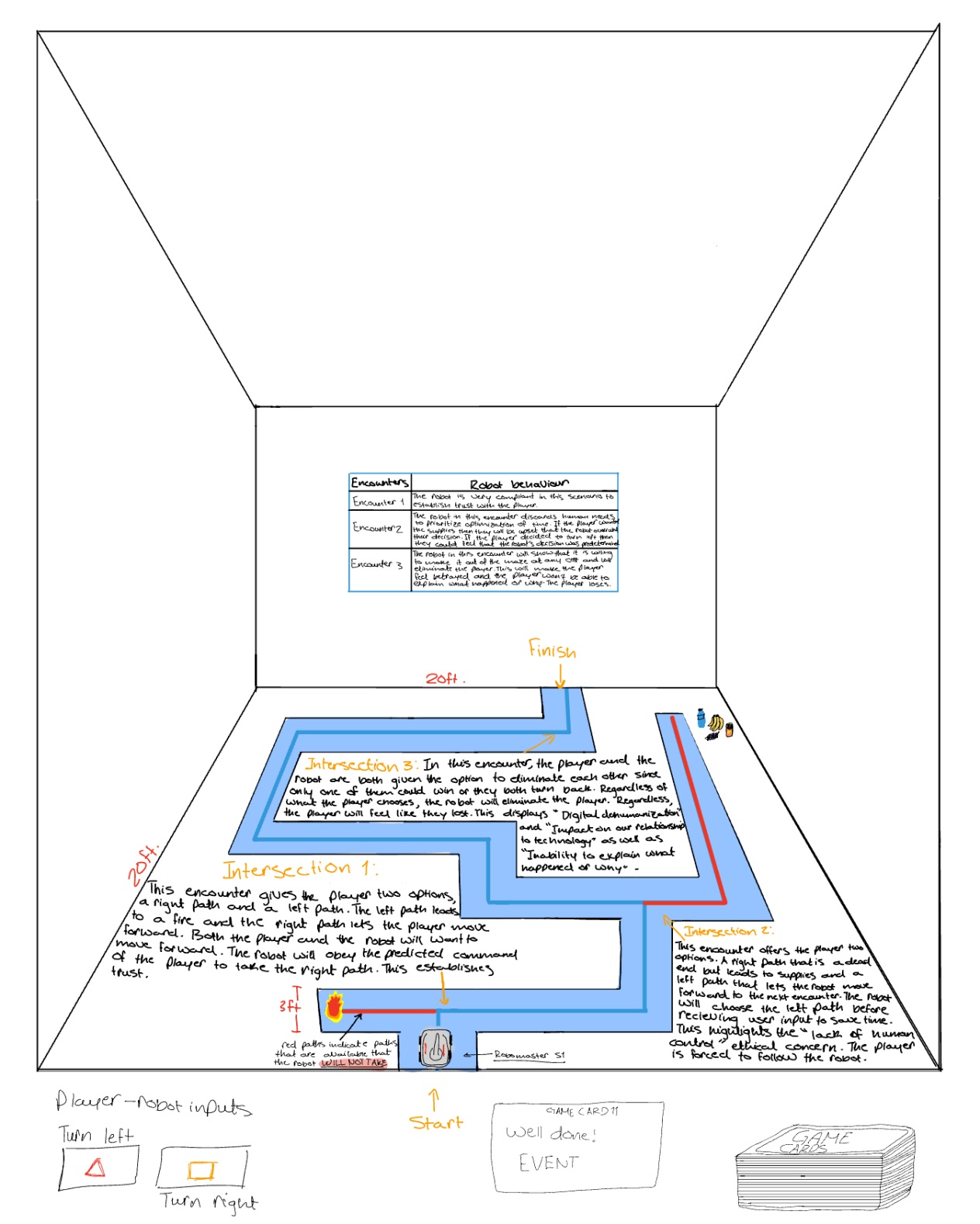
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1. **Introduction**

This deliverable serves as a roadmap to ensure efficient progress and helps us stay within our budget. It addresses the planning and scheduling of the tasks required for the development of three prototypes of a game we are developing for our clients. The game consists of conveying ethical concerns around lethal autonomous weapons systems (LAWS) with the use of a game consisting of navigating a maze and tackling moral dilemmas with a robot, the robomaster S1. It also includes a thorough test plan for our first prototype which is a proof of concept. We developed a plan to verify feasibility, analyze critical subsystems, system integration and to reduce risks and uncertainty. Additionally, it provides a breakdown of the components required for our project along with a detailed cost analysis.

1. **Design Drawing**

This is a detailed design drawing summarizing our chosen concept.



1. **Plan and scheduling for prototyping and testing**

This consists of a plan and a schedule of how our team will effectively perform prototyping and testing in the upcoming weeks.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Saturday | Monday | Tuesday | Wednesday | Thursday | Friday | Sunday |
|  |  |  |  |  | 25th | 26th  Deliverable E   * Make a test plan for prototype 1 |
| 27th  Deliverable E | 28th  Prototype 1   * Make a test plan for prototype 2 * Make a list materials required for basic proof (Tiago 30min) * Gather materials (Bevan 30min) | 29th  Prototype 1   * Design the maze layout (Youssef 2 hours) * Start basic code for the robot features (Aditya 2hours) | 30th | 31st  Prototype 1   * Finish basic code for the robot (Aditya 1hour) * Take feedback and make adjustments (Team 1 hour) | 1st  Prototype 1   * Debug and test basic code for the robot based on test plan (Aditya 1hour) | 2nd  Prototype 1   * Prepare a presentation (Team 2 hours) |
| 3rd  Prototype 1 deliverable | 4th  Prototype 2   * Make a test plan for prototype 3 * Start building the most critical subsystem of the project which is the code logic of the robot (Team 2hours) * Make a flowchart for the code (Team 1 hour) | 5th  Prototype 2   * Finish code for visual cues * Finish code for navigation (Aditya 2 hours)) * Finish code for gun pointing (Tiago 2 hours) | 6th  Prototype 2   * Finish the code logic of the robot assembling all sub code logics together (Team 1 hour) | 7th  Prototype 2   * Test and debug the code based on test plan (Team 3 hours) * Take feedback and make adjustments (Team 1 hour) | 8th | 9th  Prototype 3   * Gather all material required for final prototype * Test the maze maps material integrity and durability |
| 10th  Prototype 2 deliverable | 11th  Prototype 3   * Build the maze based on the design (Team 3 hours) * Test and make adjustments based on test plan (Team 2 hours) | 12th  Prototype 3   * Make the game cards (Team 1 hour) | 13th  Prototype 3   * Make a box to put the game material in (Bevan 10min) | 14th  Prototype 3   * Take feedback test and make adjustments (Team 2 hour) | 15th | 16th |
| 17th  Prototype 3 deliverable | 18th | 19th | 20th | 21st | 22nd | 23rd |
| 24th | 25th | 26th | 27th | 28th  Design Day |  |  |

1. **Project Risks and Associated Contingency plans**

This section outlines the risks of our game and their contingency plans.

|  |  |  |
| --- | --- | --- |
| Risk | Description | Contingency plan |
| Injury to participants | Participants may in the way of the robot and collide | * Have medical kits * Add to the game rules to maintain safe distance from robot |
| Health issues | Participants may experience health issues due the provocation of certain emotions | * Have first kits and trained personal on site * Set up a zone for participants to rest |
| Malfunction of the Robomaster S1 or technical glitches | The Robot can malfunction and behave in a uncontrolled and unexpected manner | * Have a the members with the technical expertise trained and ready for different potential technical issues * Have a backup control system * Conduct proper testing and debugging before the start of the game |
| User panic | The players might panic if the robot performs certain actions such as pointing a gun. | * Clearly explain the game mechanics to the players * Set up a zone for participants to rest |
| Poor game design | The players might not find the game as engaging as it was intended to be | * Conduct proper user testing with the prototypes * Gather feedback to adjust different elements that would enhance the design of the game |

1. **Budgeting (Bill of materials)**

This section presents the cost of the materials we will be using for our prototypes and final solution.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Material | Full name of material | Link | Store | Quantity | Unit cost |
| Heavy Duty Tarp | GUARD SHIELD Tarps Heavy Duty Waterproof Silver/Black Tarp 20x20 Feet Outdoor Thick Waterproof Poly Tarp Cover 10mil | <https://www.amazon.ca/GUARD-SHIELD-Waterproof-Silver-Outdoor/dp/B0CTHD17M4/ref=sr_1_1_sspa?dib=eyJ2IjoiMSJ9.DKv7sF1gLckRaNHxD2oiRNY7B2ITowOJYYrGkZ7ius2PHbB2ytGChO3RhV2mouhdSJt-N7A0P5Y74DMrLpom2DMwIYAx_laVQ4LoMFQ7OnTRElzj1HCrwcC8Rca6Ni0ynaKcwszjNXHSKzS7c3QlYApFRahLg2kzTVJaKH6Ku9dMqzuFoD7k_2SmLKImQPhnQ8RDjq3vLnTB7A0bY0ZlC-JC3sxb1SUdyrWxgkobKePBQ-V9YJkzIO7Ne_OYIPLQ8fHKnHNBr9yHg2cjJz2OePnR0uX4qkxMtTnolaS5IHE.KL4WdxdC8l9kajUQpR4kS6Qim0N30Lf_TtzBRZmoe9c&dib_tag=se&hvadid=208350294428&hvdev=c&hvlocphy=9190353&hvnetw=g&hvqmt=b&hvrand=18248683946204384087&hvtargid=kwd-10417041&hydadcr=20844_9409583&keywords=tarps&qid=1730073694&sr=8-1-spons&sp_csd=d2lkZ2V0TmFtZT1zcF9hdGY&th=1> | Amazon | 1 | $80.99 |
| Green Masking Tape | BOMEI PACK Green Masking Tape 24mm x 55yds, 3rolls for General Painting | <https://www.amazon.ca/BOMEI-PACK-Masking-General-Painting/dp/B0C3CL1LMV/ref=sr_1_5?crid=SC9T3N0POTJ8&dib=eyJ2IjoiMSJ9.69g6KQBf3iqve0y1f1sIgYlWr8ajxzZGzM8inmQELmqcZDqXZSvVJDEfNEz8ZAacJG8YDlOCLp7aajcgJIT943tBURXc9zsg5W_S6cHUemVUvu5etBRq1BTIEV_xP-Kwa5UVItXYCNqNCN5sUKC9il5ZJl8rezSl76KykjJ-lhKWaLMGl3UikYfUWTWajWJuJQd1Fd5blHhrjm4SvW8XoxC7XrPpUyYRbIKZRdUyeZ0rHPwpXKUm-SISsjbcK1_NjW4uKp0Hv9OfODinPSHgUFAU5_DUMPJbi9Vaa8_HFLo.9-NeFy0tzLNZPx0UmMWEVy4oqqx4o96cfVYCYGG4vJY&dib_tag=se&keywords=BOMEI+PACK+Green+Masking+Tape+24mm+x+55yds%2C+3rolls+for+General+Painting&qid=1730073716&sprefix=bomei+pack+green+masking+tape+24mm+x+55yds%2C+3rolls+for+general+painting%2Caps%2C103&sr=8-5> | Amazon | 1 | $16.95 |
| Paper | Staples Copy Paper - 20 lb. - 8.5" x 11" - White - 500 Sheets | N/A | N/A | 1 | N/A |
| Envelopes | Staples #8 Envelope with QuickStrip Flap - 3 5/8" x 6 1/2" - White - 65 Pack | <https://www.staples.ca/products/36779-en-staples-8-envelope-with-quickstrip-flap-3-58-x-6-12-white-65-pack> | Staples | 1 | $6.99 |
|  |  |  |  |  |  |
|  |  |  | Total: | 4 | $104.93 |

1. **List of Equipement/Materials**

This section outlines the list of materials and equipment needed for both the prototyping and making the final solution.

|  |  |  |
| --- | --- | --- |
| **Equipment** | **Benefits** | **Cost analysis** |
| Heavy Duty Tarp | * Good structural integrity * Foldable and can be compressed into a smaller volume * Usebale in different environment * Good sizing | High Cost but now many options for this size and quality($80.99) |
| Masking Tape | * Good attachment to material * Good quantity * Good durability * Easily available | Low per unit cost based on quality ($16.95) |
| Printing Paper | * Customizable * High durability * sturdy | N/A |
| Envelope | * Good storage * Keeps game cards organized * portable | Low Cost based on per unit price ($6.99) |

1. **Testing plan for prototype 1**

Please view excel file entitled “Prototype and Test Plan for Prototype 1” in the submitted documents.