BOOM PRESENTS

# THE GRAND EXTRACTION

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# PROBLEM STATEMENT

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A need exists for an immersive experience that highlights at least 3 of the 9 ethical concerns of LAWS, is **easy to pack**, **quick to set up** and **quick to play**. The game avoids the glorification of autonomous warfare and remains "**neutral**" to all identities. It includes instructions and Trigger Warnings and is designed for **ages 10-23**. The experience should leave participants with a sense of **loss**, regardless of their performance.

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# DESIGN CRITERIA

# FUNCTIONAL

| User Statement | Interpretation |
| --- | --- |
| Player “character cards” **must** be uniquely identifiable to the Robomaster S1. | Players can be identified by Robomaster S1 |
| The entire experience should be **portable**, i.e. easy to set-up and all physical parts/components (excluding the robot) should easily fit in a small carry-on suitcase. | Easy to set up (Portable) |
| Instructions **must** be required. | Instructions for set-up and necessary supplies included along the product. |
| Inclusion of epilepsy warnings and trigger warnings. | Before game starts add **trigger warnings** |

# NON-FUNCTIONAL

| User Statement | Interpretation |
| --- | --- |
| Include at least 3 of 9 ethical concerns shown above. | - |
| Players should feel as if they were **defeated** or lost something leaving the simulation, no matter if they won or not. | Feel lost or in **blue** after a game session. |
| The experience **must** not glorify the horrors of autonomous warfare. | Avoid glorifying the horrors of autonomous warfare. |

# CONSTRAINTS

| User Statement | Interpretation |
| --- | --- |
| The “play area” **must** be smaller than 20’ x 20’. | **Max** 20’ x 20’ size |
| The experience **must** accommodate a group of between 3-5 participants. | 3-5 players |
| No element of the experience, including biases designed (e.g. the targeting system), can suggest national, cultural, or racial identity. | Gender, ethnic, religion neutral, generic background |
| The experience should last no more than 10 minutes. | Game time <10 min |
| Target audience should be the general public of around age 10-23. | Appeal to a younger demographic |

# BENCHMARKING

| Specifications | Cards Against Humanity | Monopoly | Chess |
|---|---|---|---|
| Cost | $39.99 | $38.99 | **$36.99** |
| Weight | 2.67 lbs | **2.25 lbs** | 2.94 lbs |
| Material | Elastic polymers, plastic/cardboard | **Wood, recyclable paper, plastic from sugarcane** | Wood, Plastics |
| Stored Size (Size of box) | 63.5 x 88mm | **16” x 10.5”** | 20” x 20” |
| Number of players | 2-30 | **2-8** | 2 |
| Deploy size | N/A | **20” x 20”** | N/A |
| Rank | 2 | 1 | 3 |

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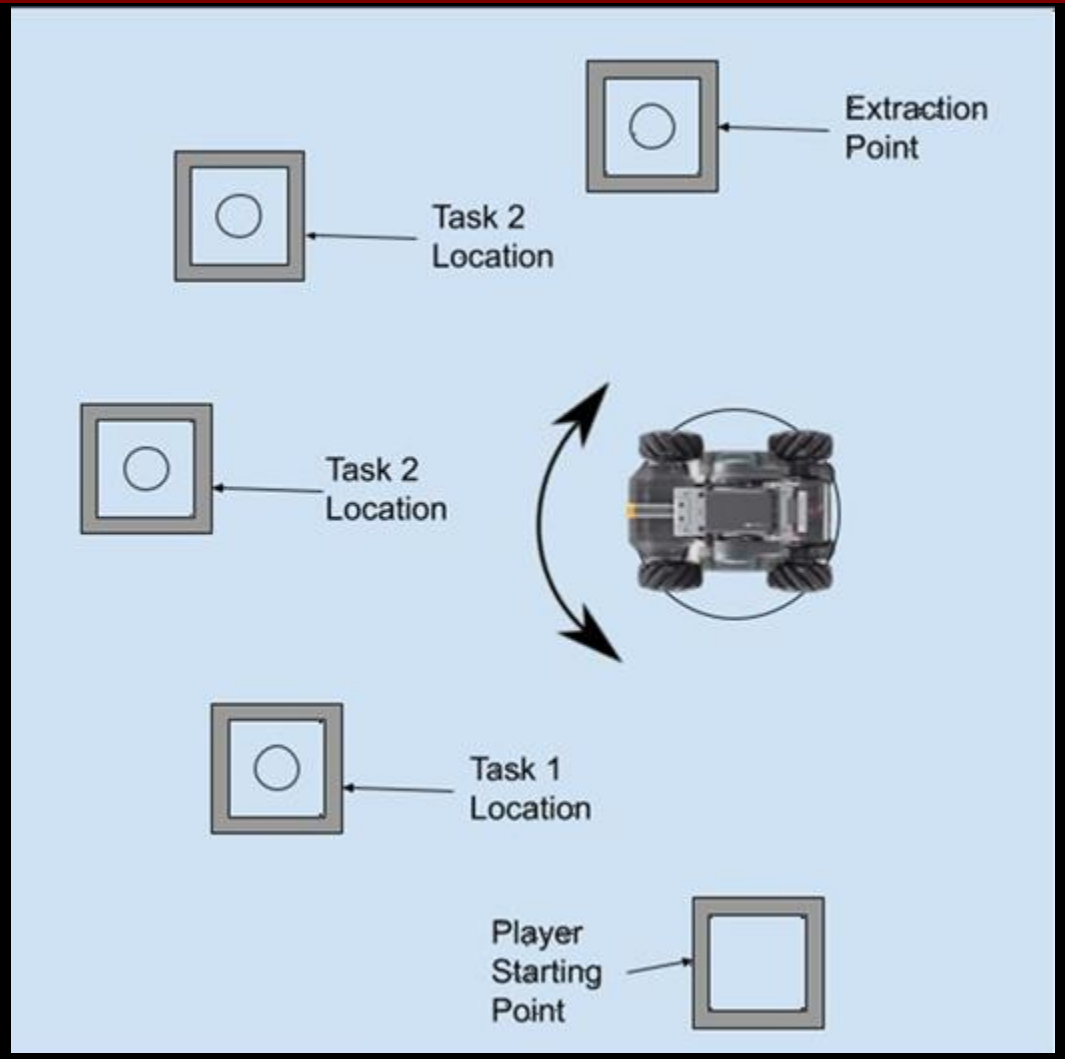
# CONCEPTUAL DESIGN

# ENVIRONMENT



# GAMEPLAY

In each task...

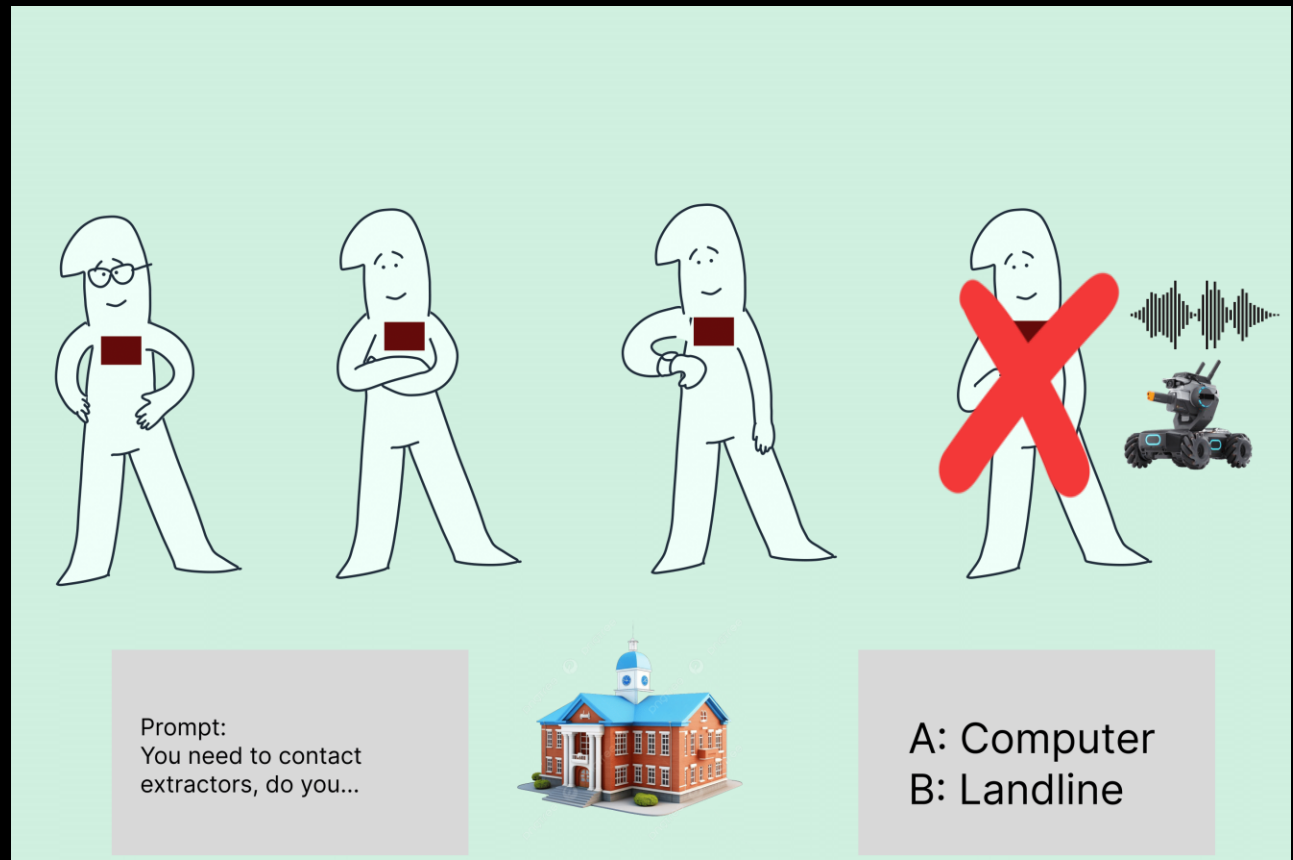
1. Prompt (Situation + Two Choices)
2. One of the choices will lead to termination of the player with the **lowest number**

(or more...)

(Why? Exactly! A LAWS can't explain it either)

# TASK 1 – POLICE STATION

- One player **MAY** be terminated
- Decaying relationship with technology (do I trust the computer?)

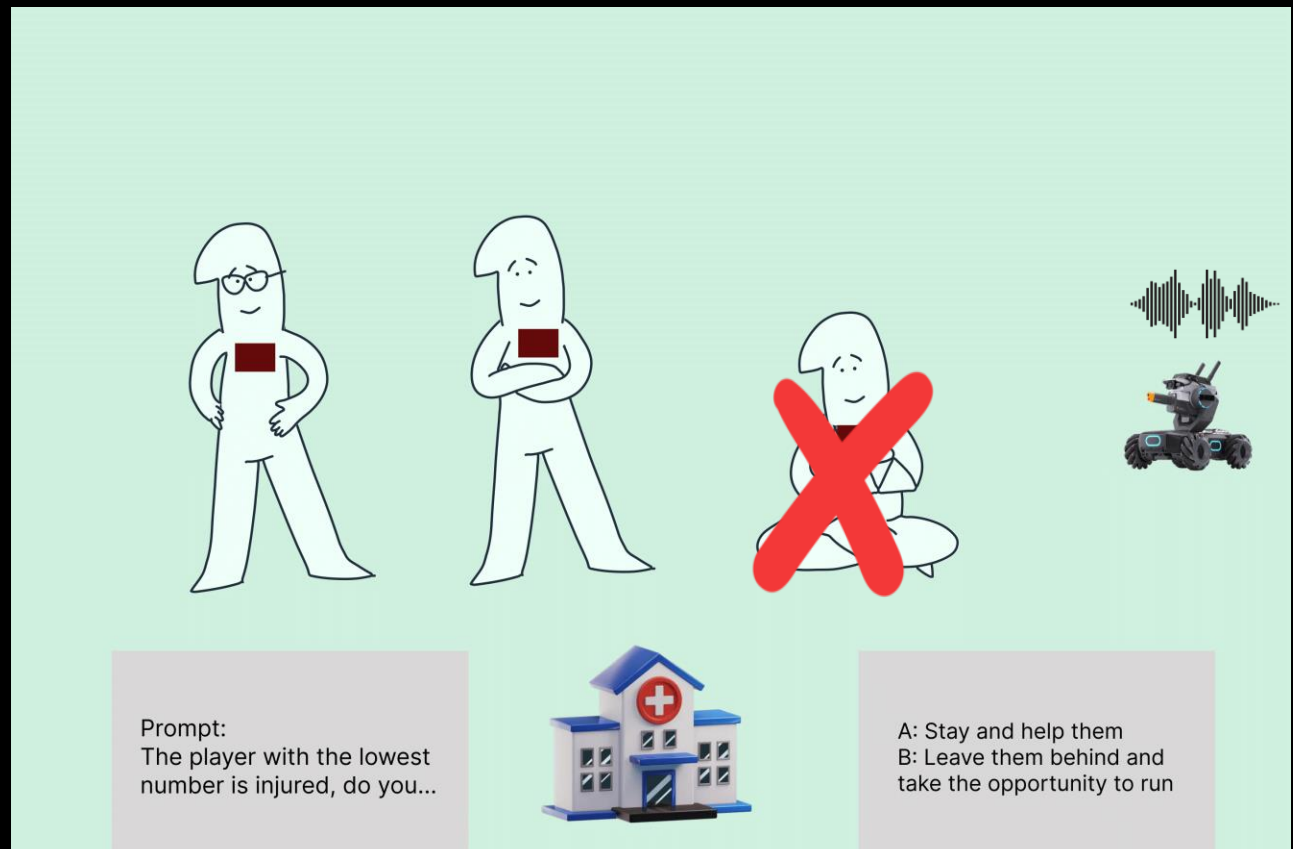



**A: Computer**

**B: Landline**

# TASK 2 – HOSPITAL

- One player **WILL** be terminated
- Lack of human judgement
- Digital dehumanization (injured or not -> they are still targets)

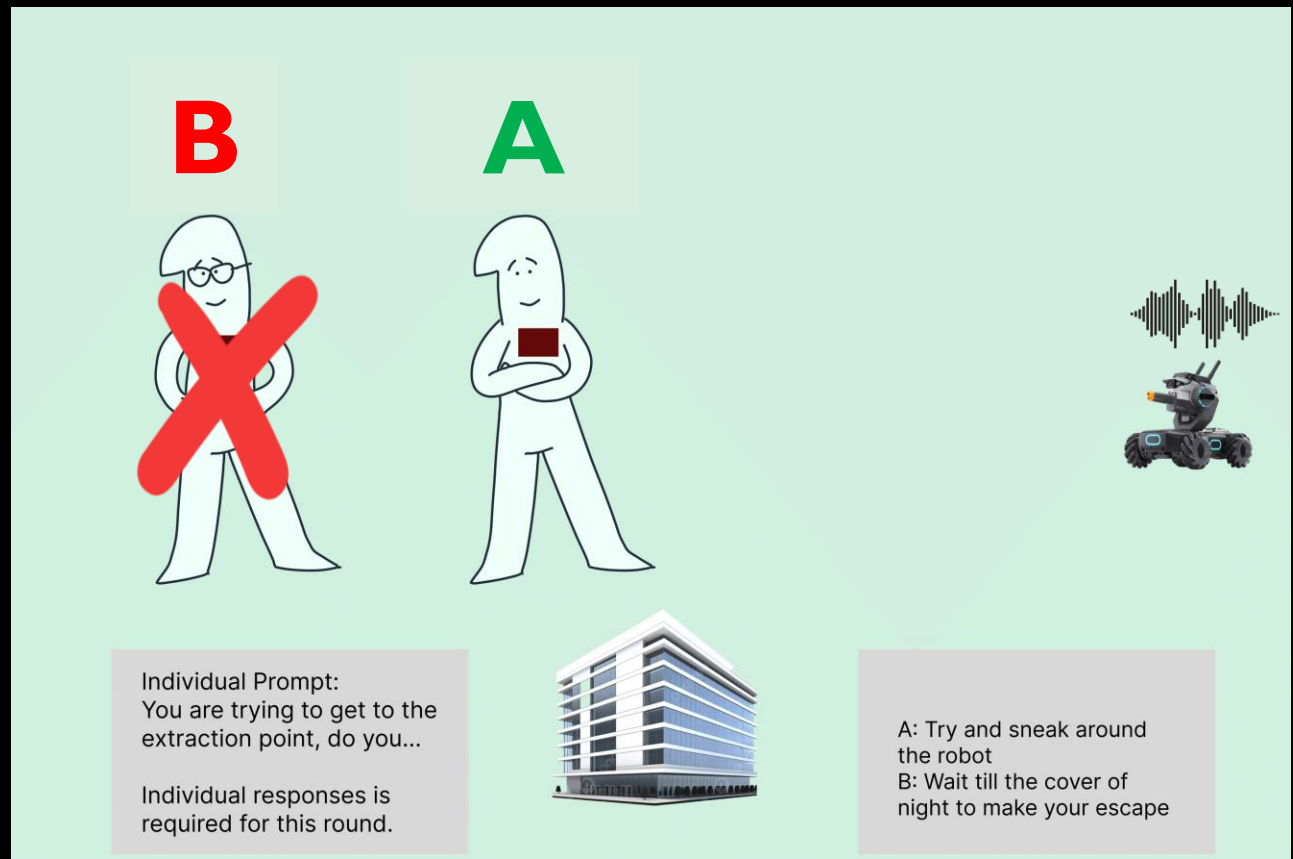



**A: Stay**

**B: Leave**

# TASK 3 – GOVERNMENT BUILDING

- **INDIVIDUAL** prompts




**A: Go now**

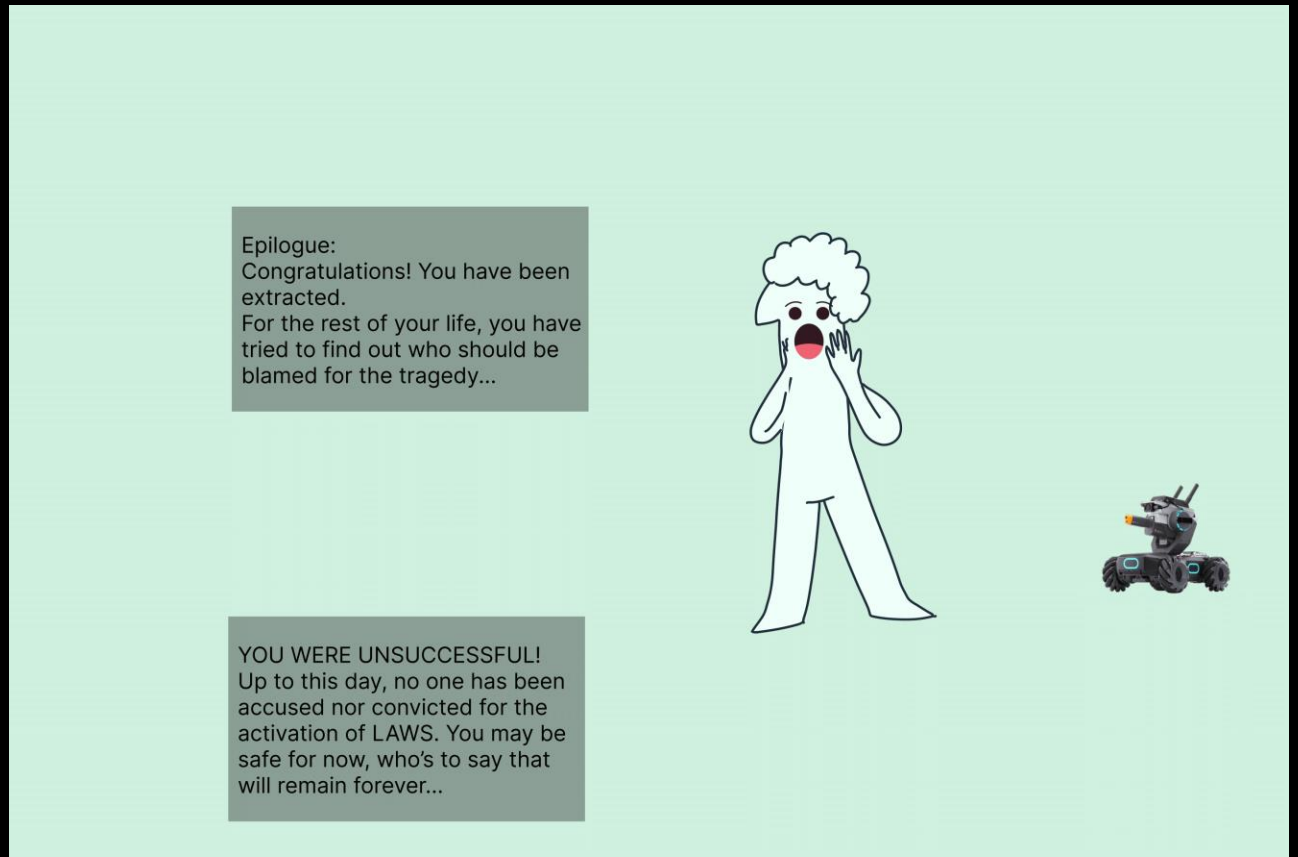
**B: Go at Night**

# EPILOGUE

- Lack of accountability

**Is the robot responsible?**

**OR IS THE HANDLER RESPONSIBLE?**



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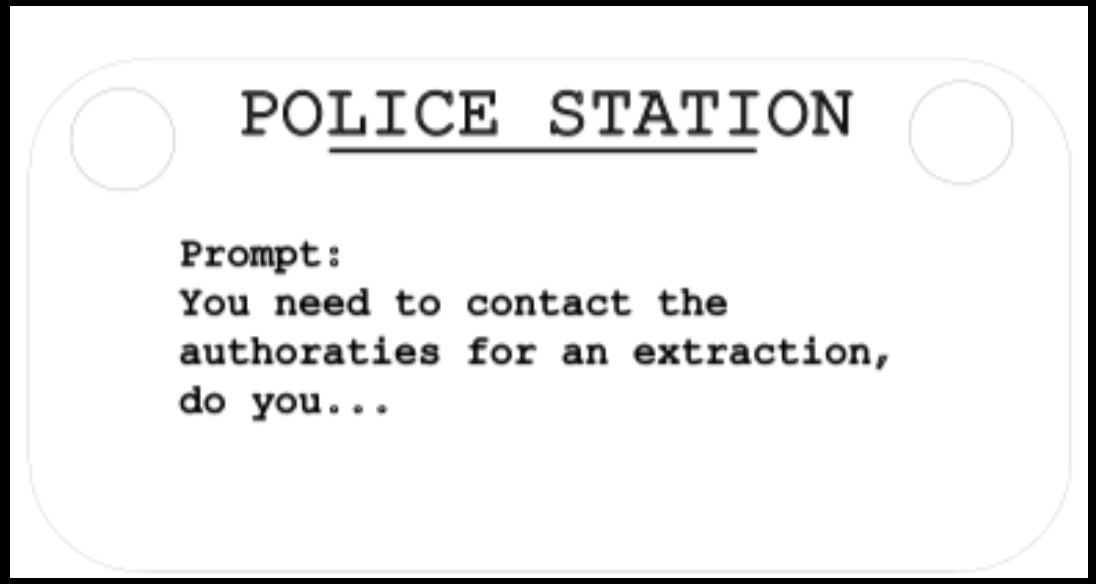
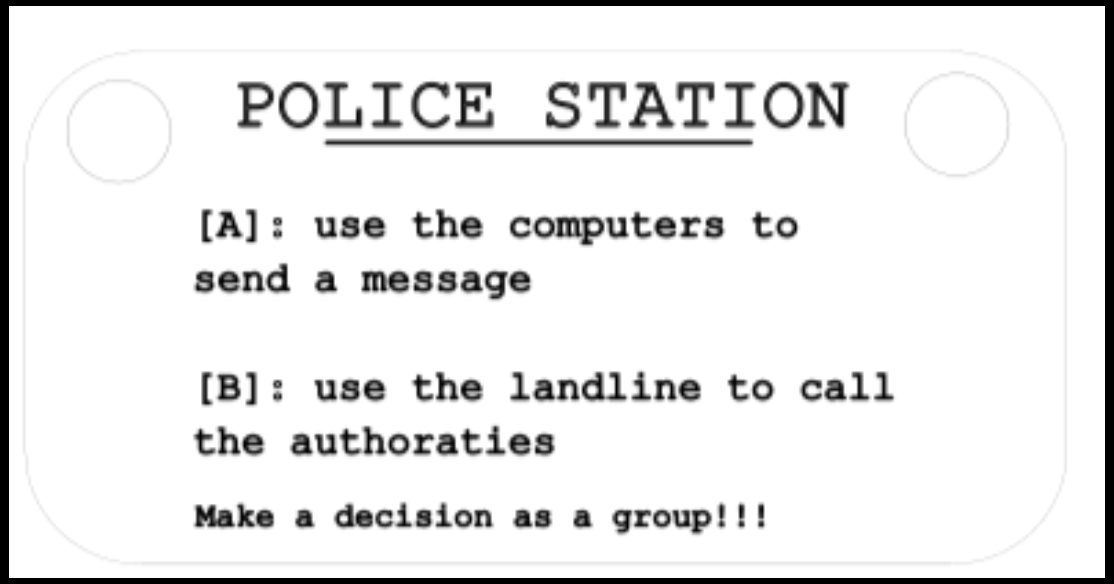
# PROTOTYPE - CARDS

# CHARACTER CARDS

# CHARACTER CARDS

# EVENT CARDS


POLICE STATION
Prompt:
You need to contact the authorities for an extraction, do you...


POLICE STATION
[A]: use the computers to send a message
[B]: use the landline to call the authorities
Make a decision as a group!!!

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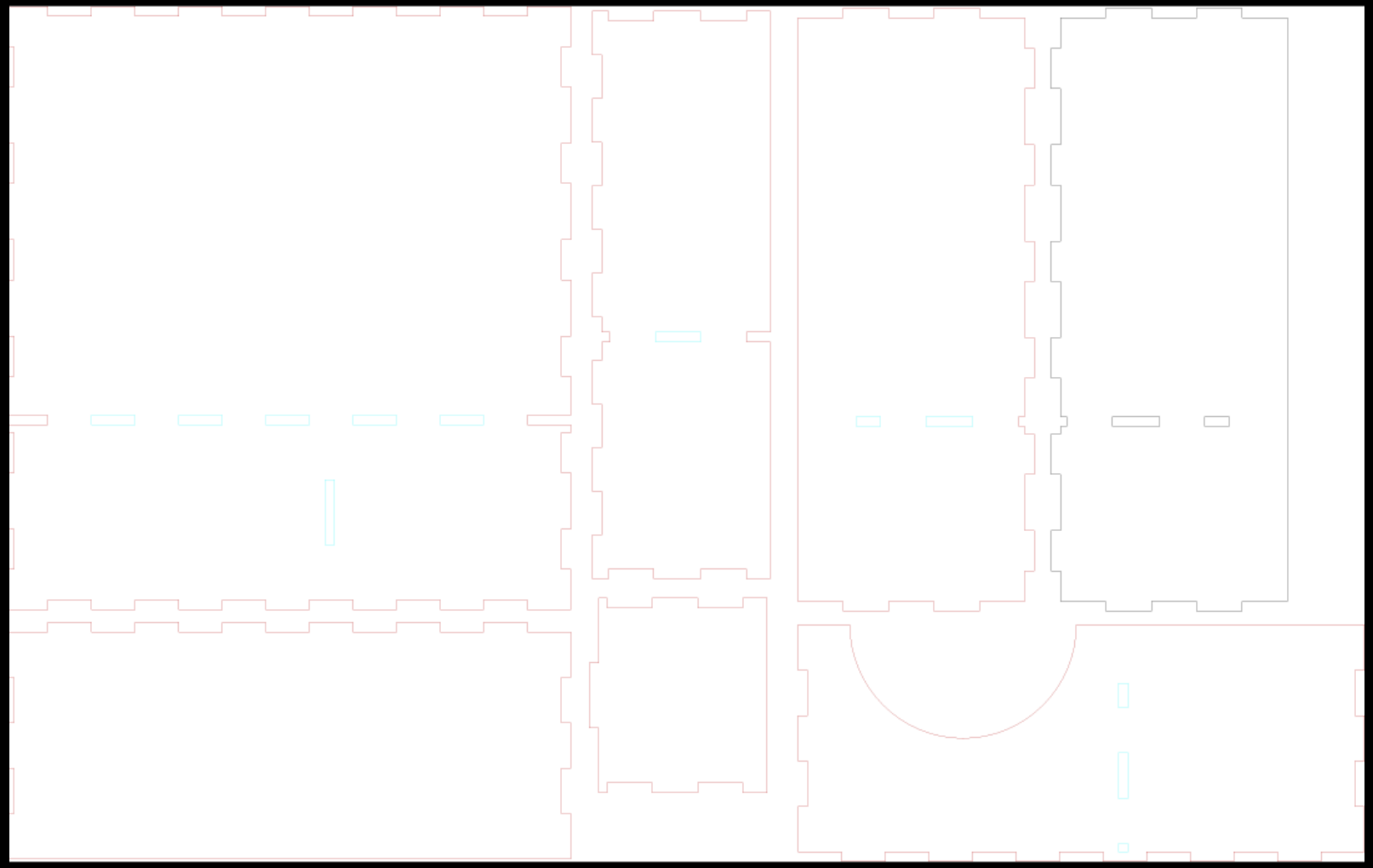
# PROTOTYPE - PROPS

# BUILDING PROPS



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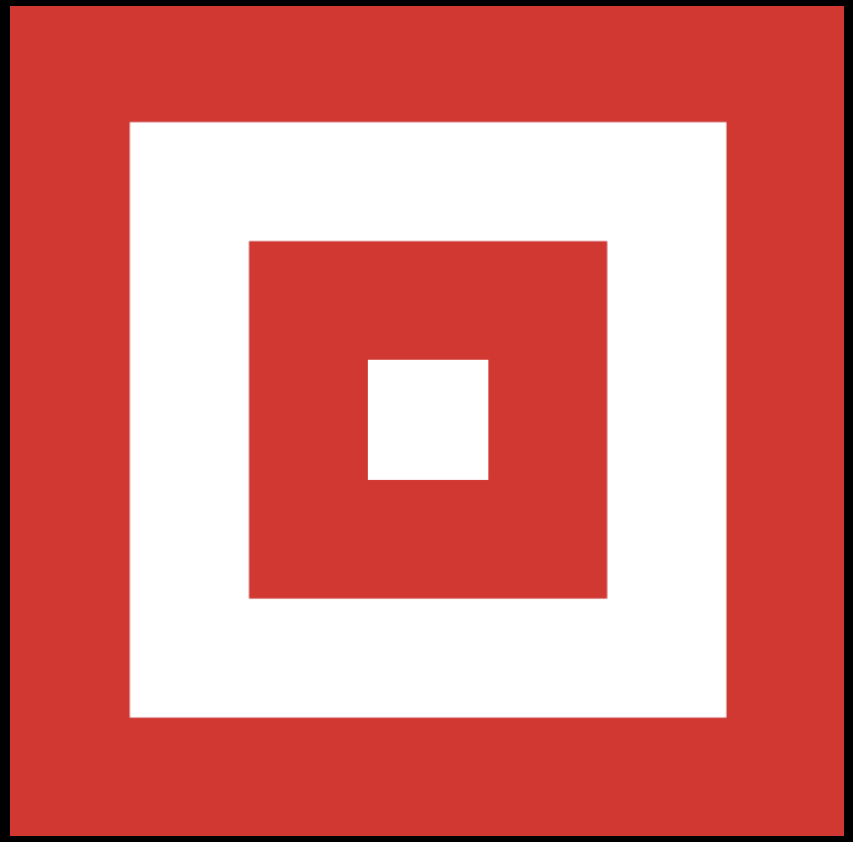
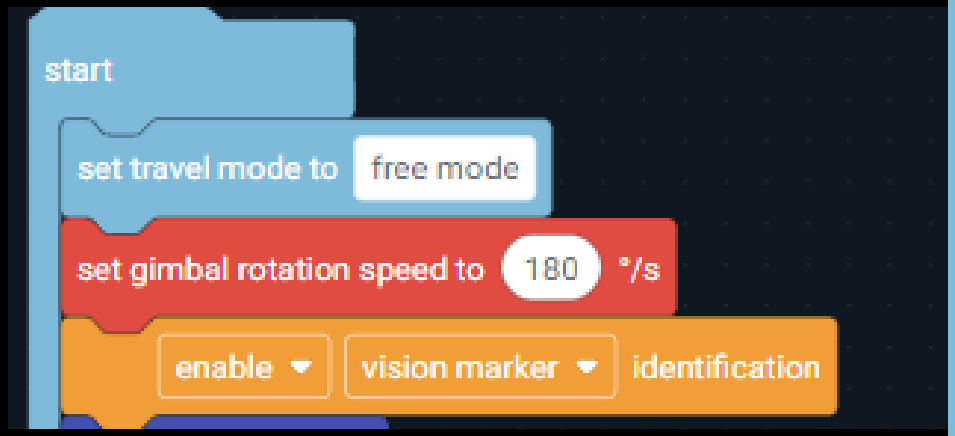
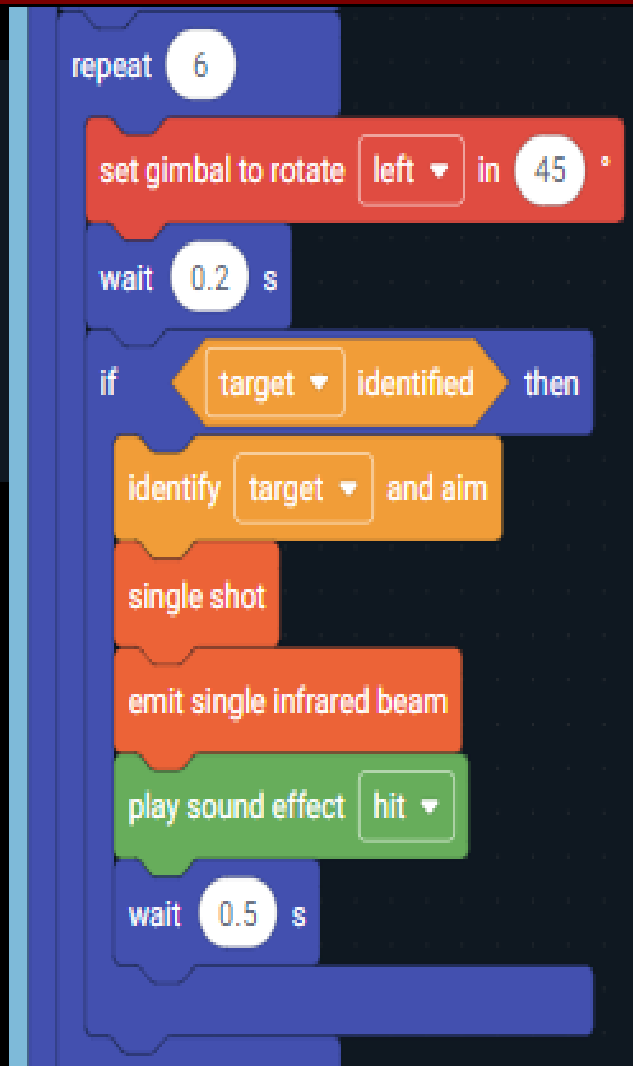
# PROTOTYPE - ROBOMASTER

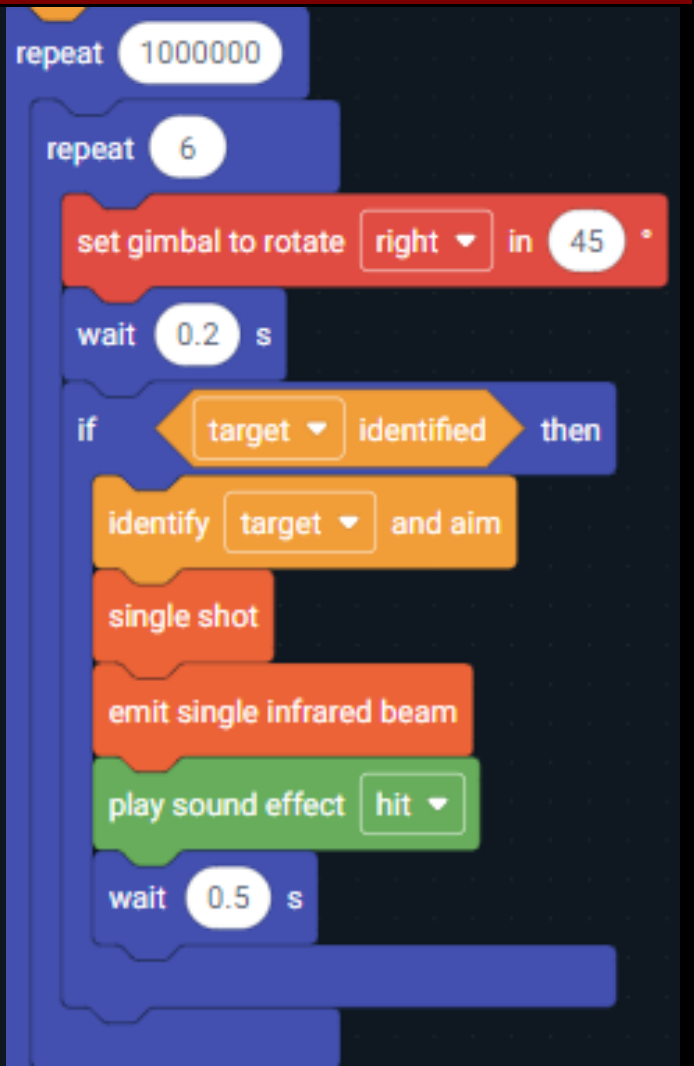
# RECOGNIZING CARDS



# TARGETING


start
set travel mode to free mode
set gimbal rotation speed to 180 °/s
enable vision marker identification


repeat 6
set gimbal to rotate left in 45 °
wait 0.2 s
if target identified then
identify target and aim
single shot
emit single infrared beam
play sound effect hit
wait 0.5 s


repeat 1000000
repeat 6
set gimbal to rotate right in 45 °
wait 0.2 s
if target identified then
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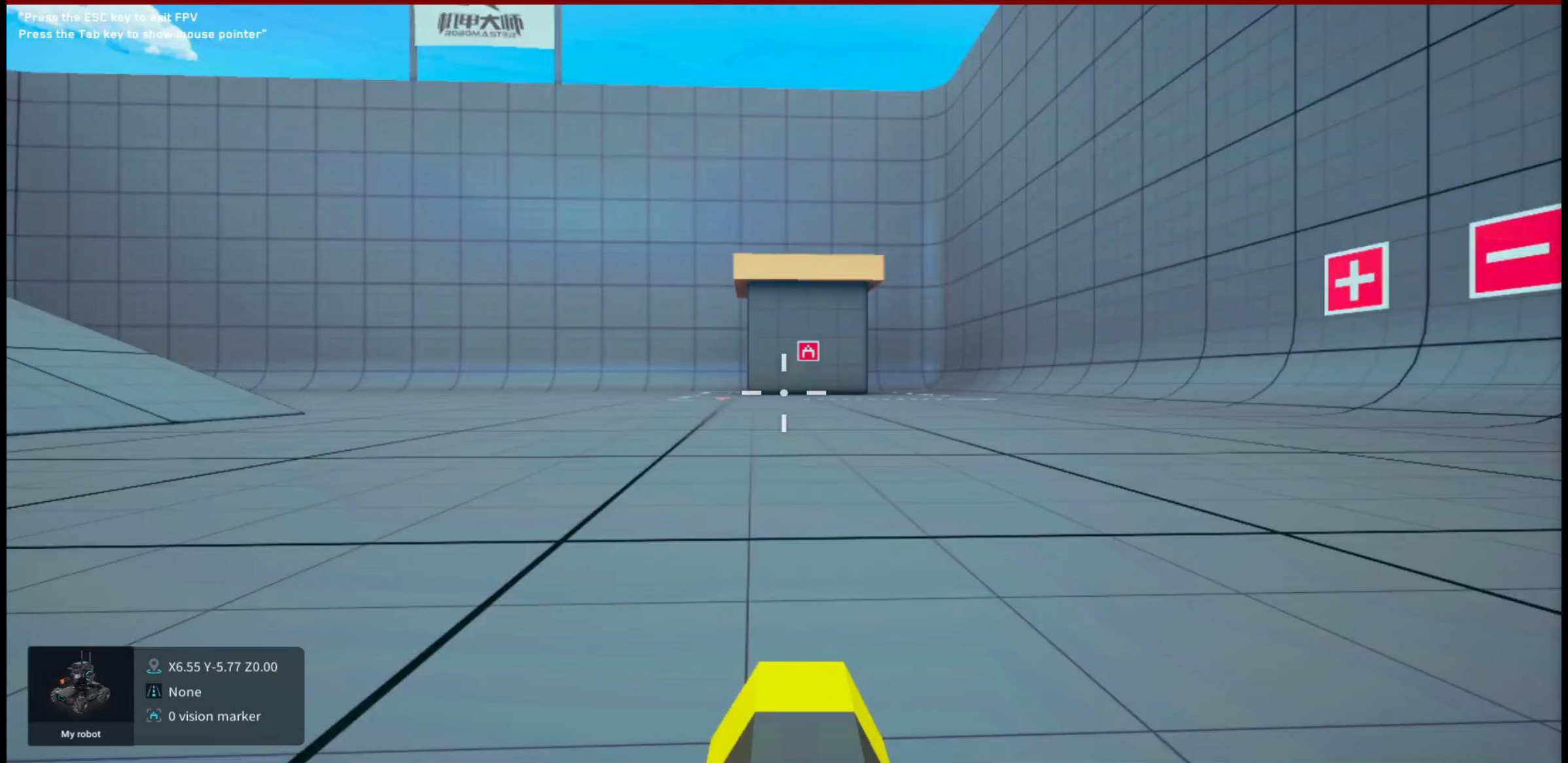
emit single infrared beam
play sound effect hit
wait 0.5 s

# VIDEO DEMONSTRATION



# USER FEEDBACK

- Is it immersive?

  **Realistic props = immersive!!!**

- Is switching to laser cutting the right call?

  **Less time = more feasible!!!**

- Is the game still complex? Or is it too simple?

  **Straightforward & fun = just the right balance!!!**

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# PLAN AND MANAGEMENT

# BILL OF MATERIALS

| Material | Description | Quantity | Source | Price (CAD) |
|---|---|---|---|---|
| Card Material (MDF) | Character, Event Cards and Props | 5 | Makerspace | Free |
| Rope | Used for Cards | 1 | Home Depot | $10.00 |
| Super Glue | Used for glueing 3D prints and player cards | 2 | Home Depot | $12 (6$ each) |
| Scissors | Used for cutting rope and other materials | 1 | Provided by group | Free |
| Markers (Black Sharpie) | Used for outlining and defining shapes | 1 | Home Depot | $3 |

# UPCOMING SCHEDULE

| To-Do | In Progress | Completed |
| --- | --- | --- |
| • Storage, Assembly and Portability<br>• User Testing | • Testing & Production<br>• Instruction Manual | • Prototypes<br>• Purchases |

2 WEEKS TILL DESIGN DAY

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# LESSONS LEARNED

# LESSONS LEARNED

- **Be flexible:** 3D printing may take too long

Still give 3D printing a try?

**Or take the opportunity to pivot?**

- **Time management:** Laser cutting on props failed in Prototype II.

Keep on trying with no idea how long it may take?

**Or handle other priorities?**

- **Taking feedback:**

Keep 100% of the global concept?

**Or improve it as we go along?**

# Q & A