TIAGo Picasso

Midterm Presentation

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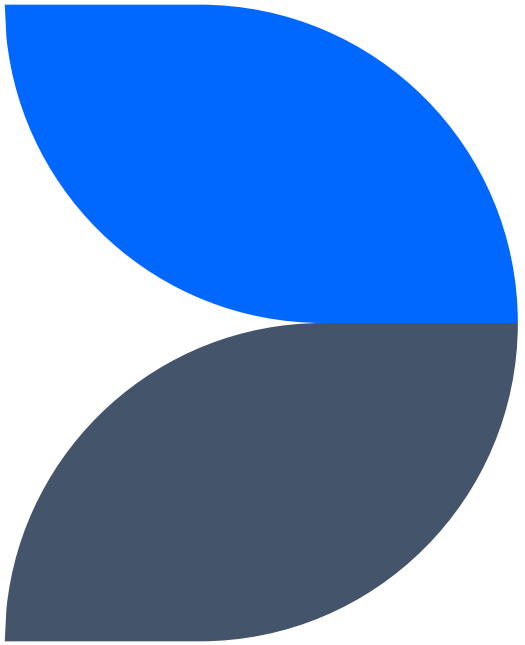
Agenda

Refined Concept

Prototype Focus

Logic & Architecture

Refined Concept



Project Objective

- Take as reference a user produced drawing
- Enhance TIAGo base robot to autonomously draw it on the floor
- Use cases:
  - Paint floor games on the schoolyard
  - Interactive storytelling
  - Exhibition purpose

Paint Floor Games

- ❏ Hopscotch
- ❏ Twister
- ❏ Maze or Obstacle paths
- ❏ Field Markings for Sports
  - ❏ Mini-tennis
  - ❏ Badminton
  - ❏ …

Interactive Storytelling

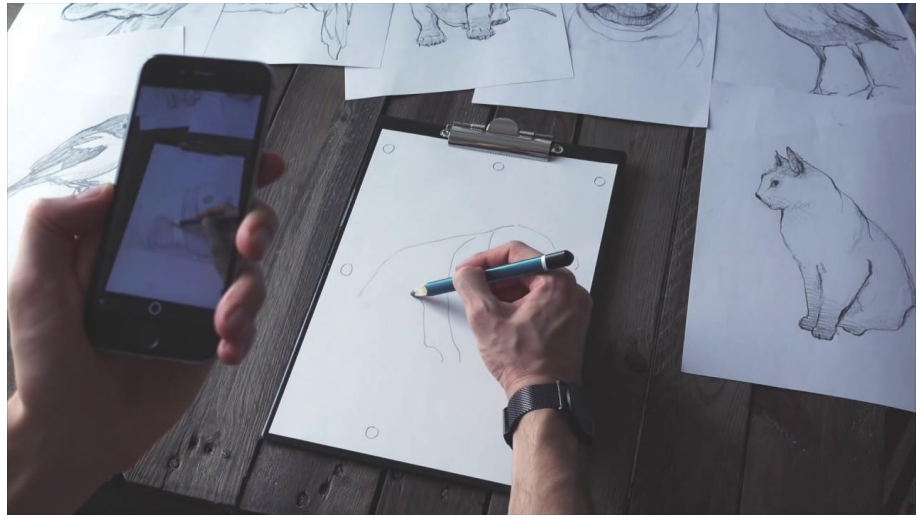
- ❏ Initial frame that represents an opening scene
- ❏ Children can choose a branch in the story
- ❏ Next frame drawn in function of the choice

Exhibition Purpose

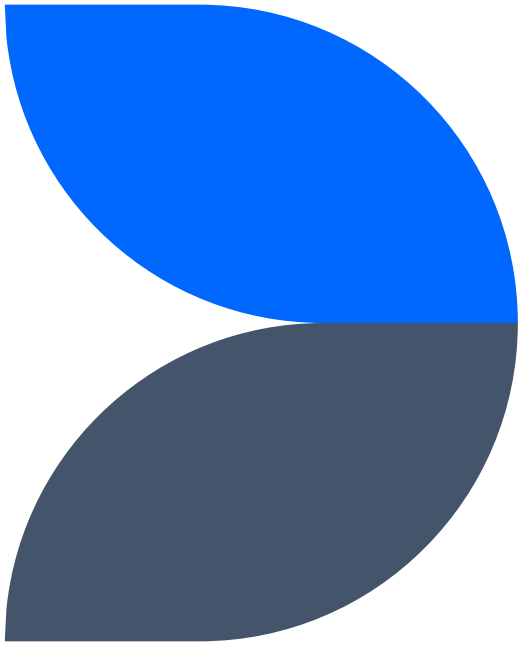
- ❏ Dynamic Robot demonstrations
- ❏ Introductory Workshops to introduce STEM fields in a fun way

User Experience and Interaction

- Direct Drawing on the Interface
  - Touchscreen or mouse
- Draw on a paper and take a picture



Prototype Focus



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- ❏ Translate simple user-drawn shapes into sequence of commands
- ❏ Pen up/down mechanism
- ❏ Timed command execution

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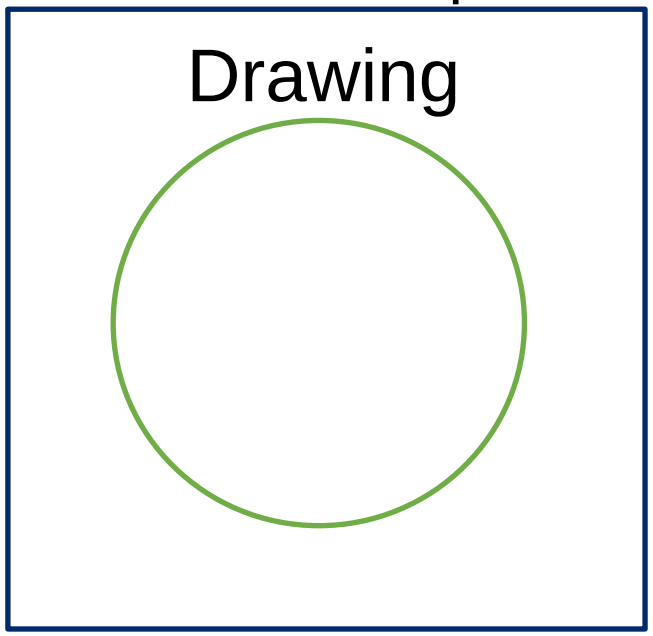

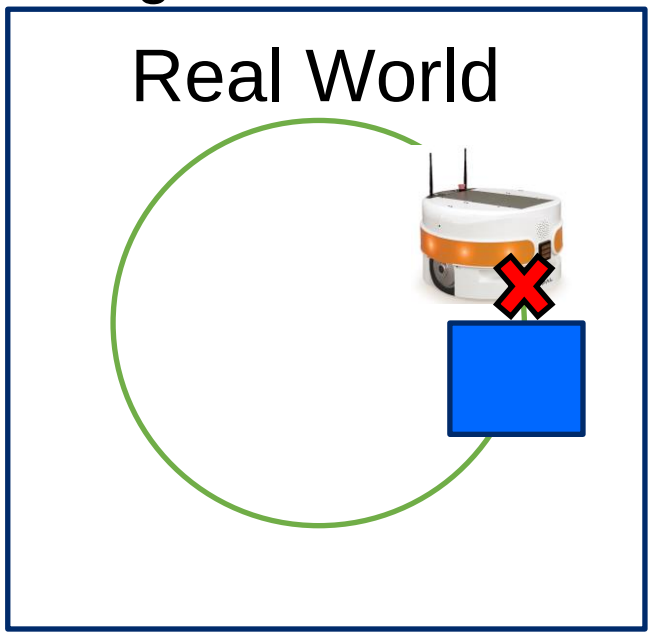

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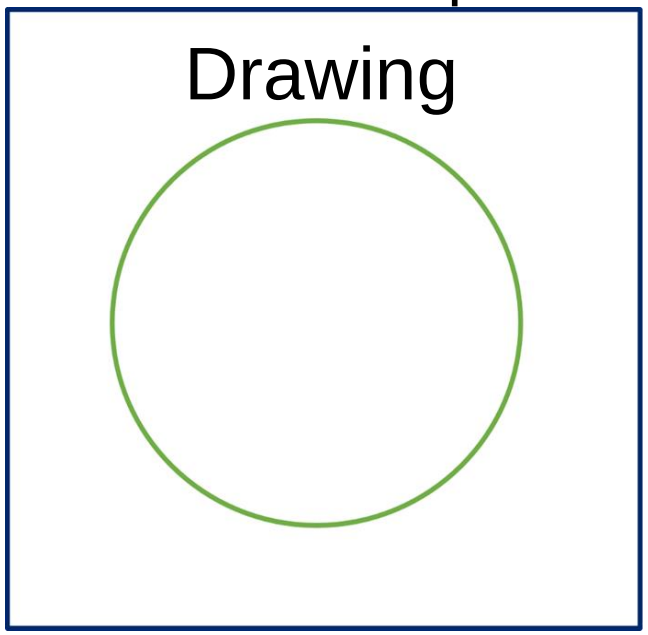

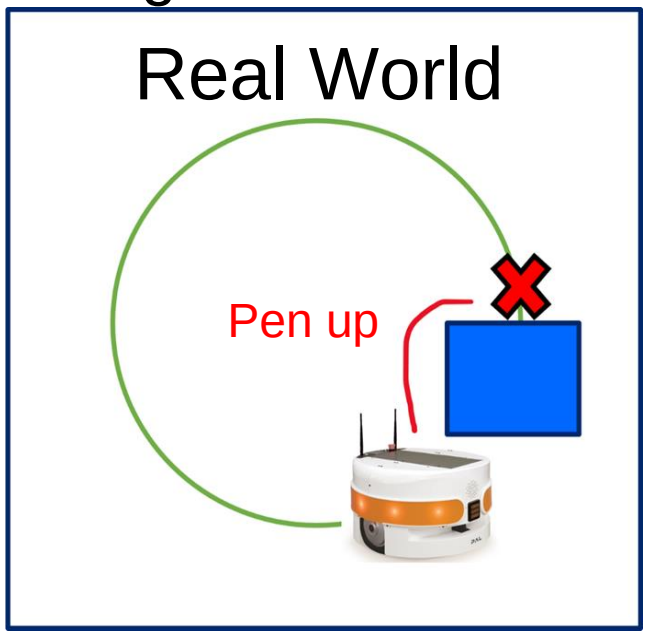

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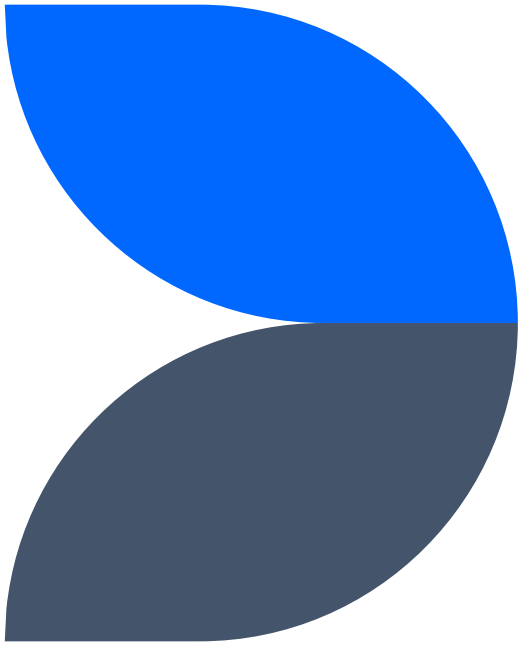
- ❏ Monitor robot position to ensure drawing accuracy
- ❏ Handle pen positioning with respect to the robot (back of the robot)

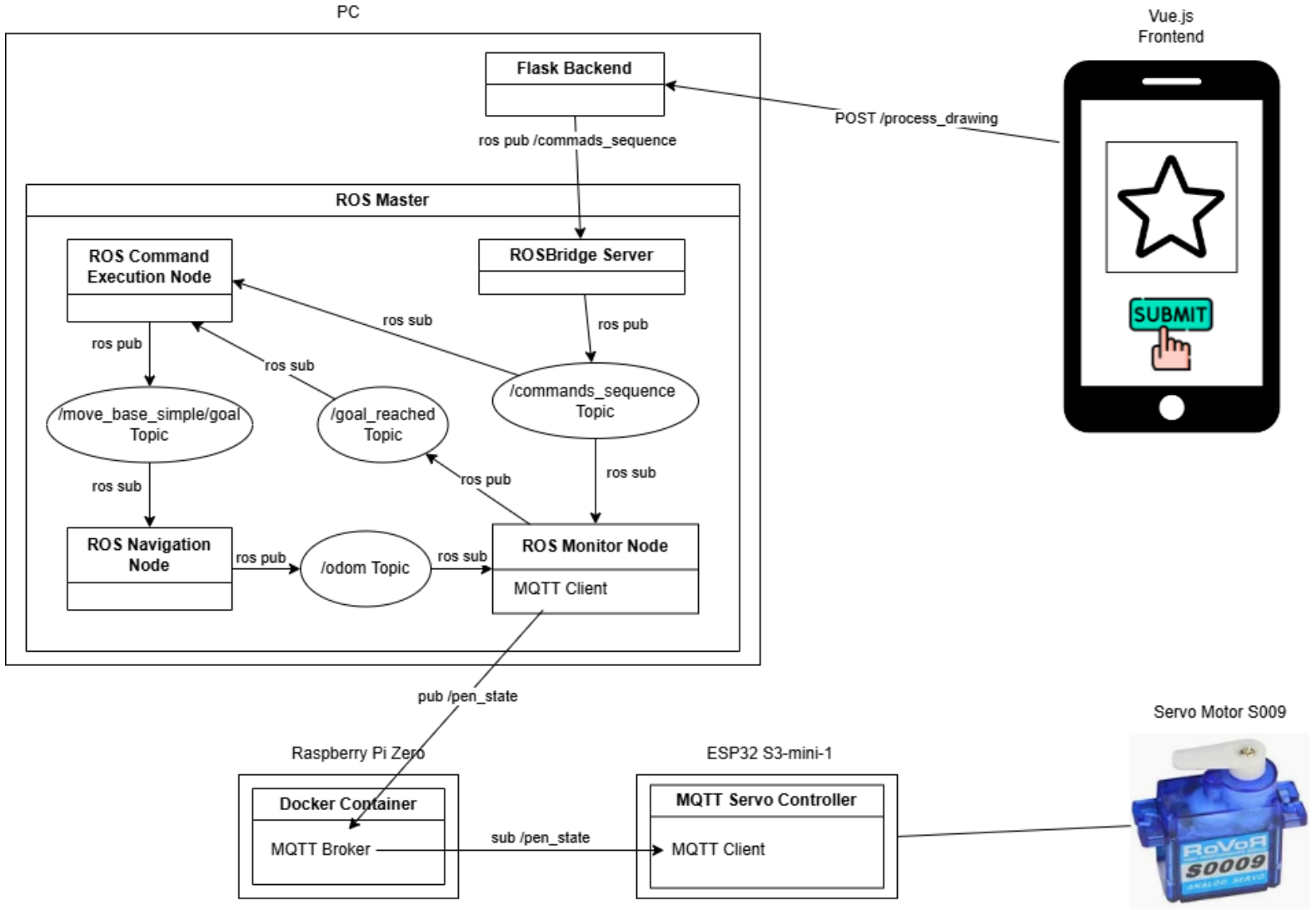
Scope Limitations

- ❑ No color variety
- ❑ User interaction limited to digital drawing interface
- ❑ Flat indoor surface

Logic & Architecture



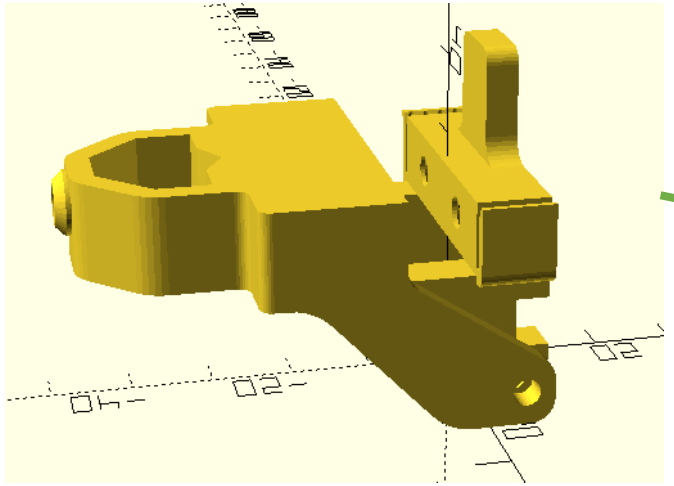
System Overview

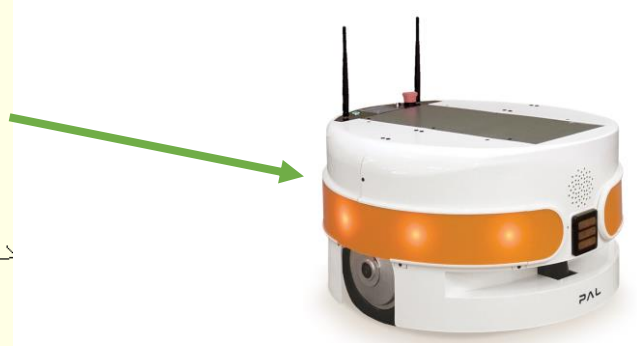


Pen Up/Down Mechanism

- 3D printed
  - Model found online

    https://github.com/bdring/midTbot_esp32/blob/master/README.md
- Attach it on the back (charging port connector)





Thank you

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