Knights x Pentagon

:::ROS2™

NAV2

Advanced Autonomous Robotics for Competitive Navigation

Rpidar A1
2D laser scanner for mapping and object detection.

Raspberry Pi
Mini computer for robot control and navigation.

Motor Drivers
Hardware for motor control [speeds & direction].

Arduino Mega
Microcontroller for hardware and motor control.

Motor
Drives the robot's wheels.

Technical Overview

> Chasis Dimensions: 30 * 22 cm

> Motor Control: Arduino PID

> RPLidar A1 2D scanner

> 3S 2200 mAH Power Supply

> Processor: Raspberry Pi 4

> Communication: UART

22 cm

30a cm

Thick wheels with large treads

Achievements

> *Innovative Stability Design*

A spread-out track-width for stability

Three layer chassis with large area for packaging electronic components [heavy ones at the bottom and Middle layers].

> *Enhanced Traction*

Thick wheels with large treads improve traction and maneuverability on various terrains.

> *Slim Design*

A Slim design with three layer chassis for achieving high maneuverability in tight spaces.

> *Autonomous mapping*

Our robot autonomously maps its environment using advanced SLAM technology, with integrated path planning and real-time sensor data for precise navigation and efficient exploration.
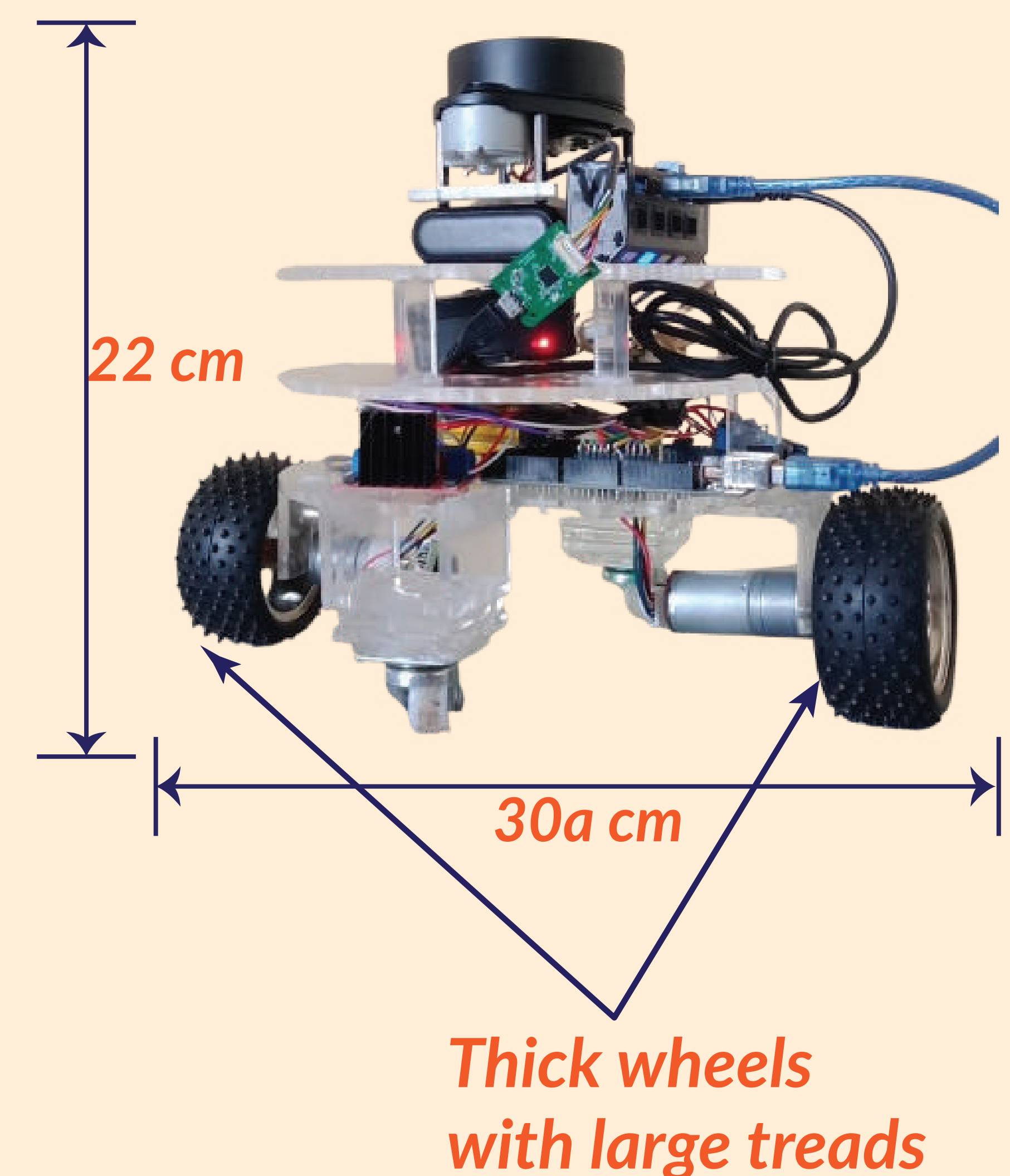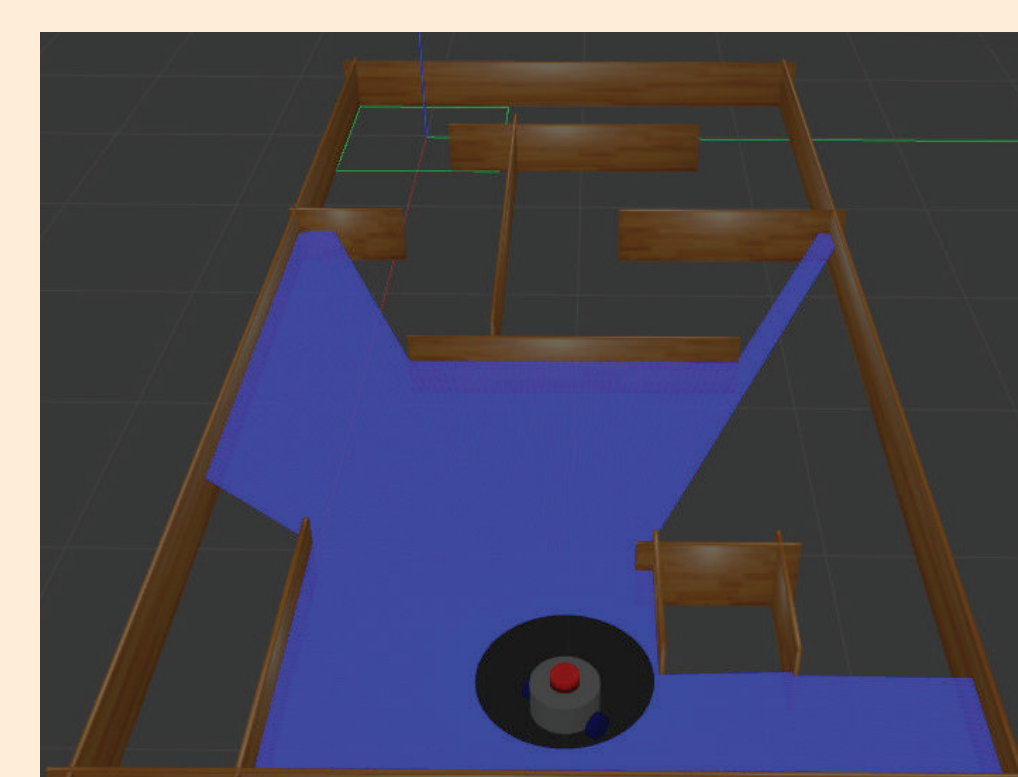
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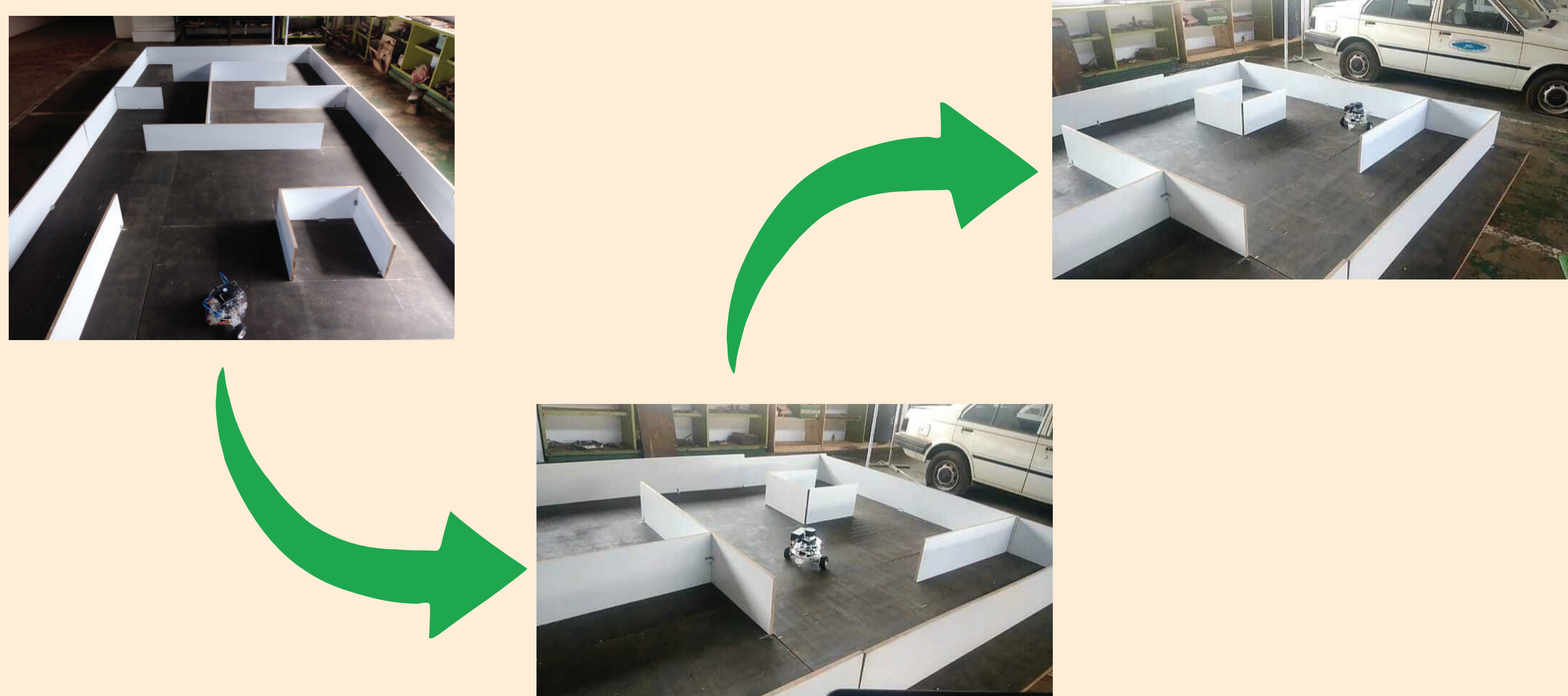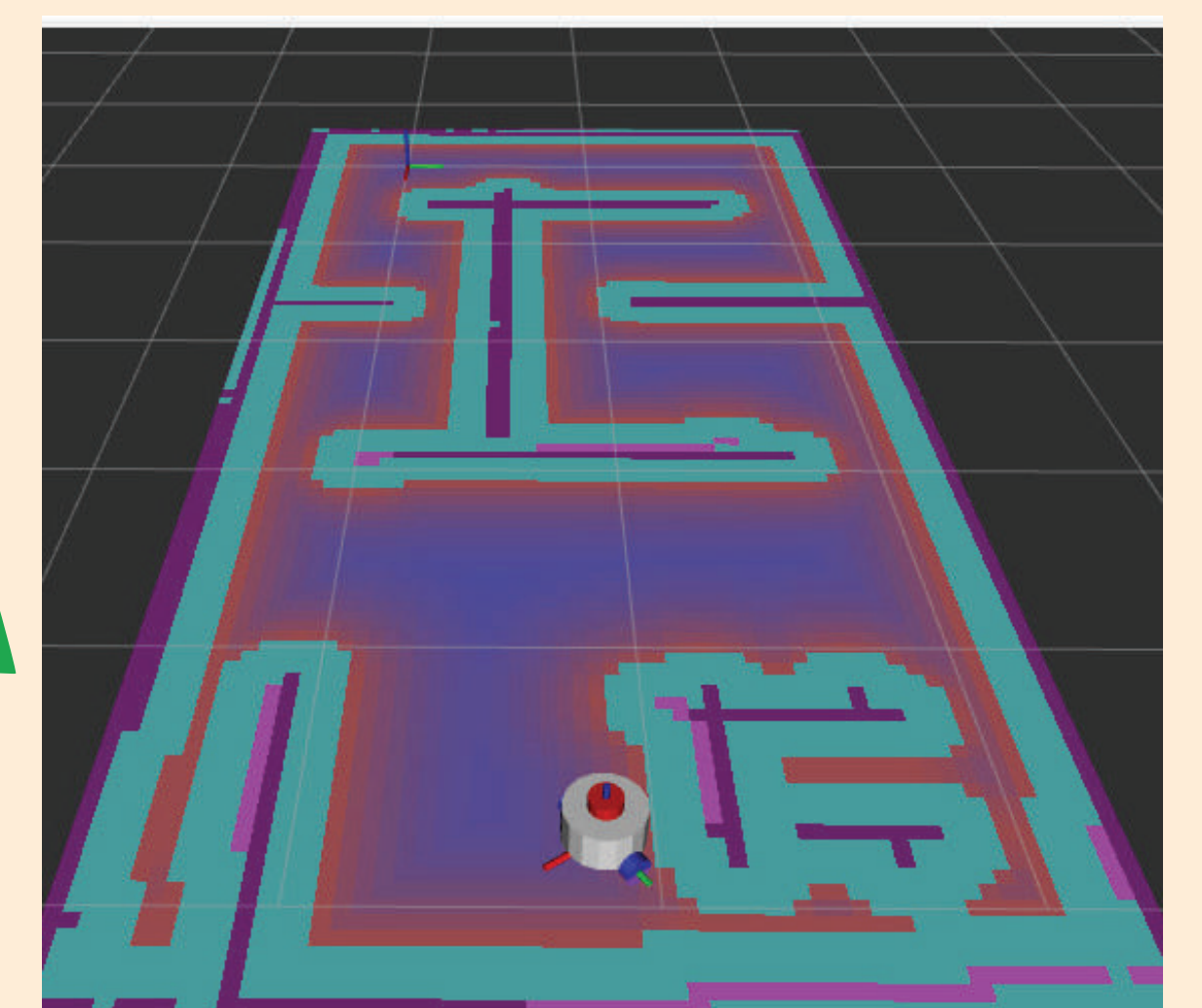
Navigating our robot through the created game field

Visualization

Gazebo [virtual]

A visualization of the robot in a virtual environment

RViz [Real time]

This is a representation of the map according to the Rpidar scanner

"Join the Future of Robotics Innovation!"

Raspberry Pi ARDUINO

ROBOTICS DOJO