Introduction

System Analysis

Similar platforms

Development

Hardware

Microcontroller

Sensors

- Overview & Considerations
- IMU
- Encoders

Actuators

- Overview & Considerations
- Motors

Main structure

- CAD Design
- Material Choices

- Manufacturing Method

Electronics

- System Diagrams
- Microcontroller Mount
- Connectors, Wires & PCBs

Power

- Batteries & Battery Holder
- Power requirements

Final Assembly

- Fastener Choices
- Assembly Strategies
- Assembled Robot

Software

Development strategy

Implemented Functionality

- Balance mode
- Position hold

Software architecture

- Software modules
- Final Structure

Testing

Testing strategy

Overall approach

Testing equipment

Test descriptions

Circuit Test

- PCB Tests
- Wiring harness tests

Encoder Test

Screen Test

IMU Test

Motor & Motor Driver Test

PID Tests

Future Development

Current Issues

Encoder inaccuracy

- Issue
- Solution

IMU mounting

Issue

Solution

Robot structure & assembly

Issue

Solution

Motors

Issue

Solution

Future Improvements

Hardware

LiDAR Sensor

asddasasfdad

Sonar Sensor

Radio Control

Functionality

Implementing GUI interface

Adding direction control

Collision Avoidance
Environment mapping using SLAM

Possible use-cases

References/Sources

Heading 1

1. Functional Analysis
2.