VarastoRobo – Navigation

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Introduction

The aim of this project was to make an autonomous storage management system, in which multiple devices work in co-operation to transport ordered packages to a drop-off point. In addition a drone was to function as surveillance system for the premises.

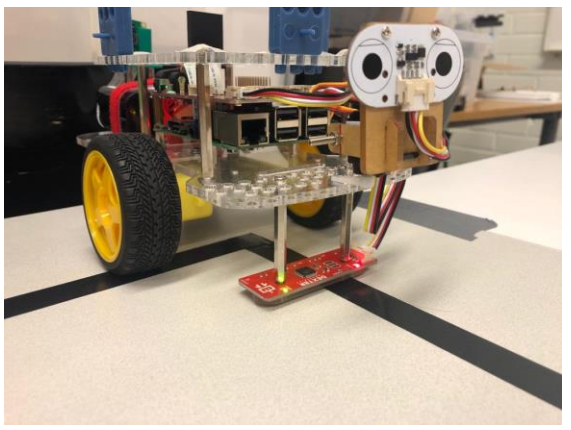

FIGURE 1. GoPiGo -robot

Objectives

Our goal in the VarastoRobo project was to develop the movement features for GoPiGo robot(FIGURE 1). The main purpose was to get to know which way the robot is facing and to track the position of the robot. This was required so the robot could move on the map according how the master commanded it

Methods

To be able to move independently, it was decided to use the GoPiGo Line Follower for movement and navigation on the map(FIGURE 2).

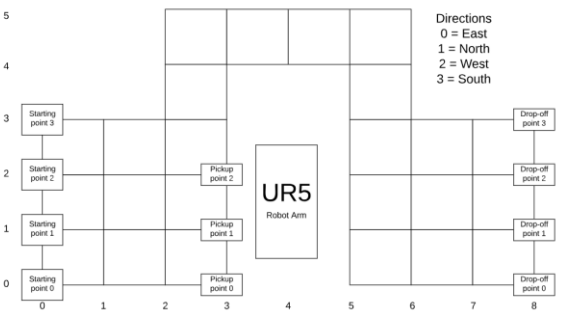

FIGURE 2. Courier Route Grid

The main parts of the python code was developed so the robot could receive command to drive to a specific direction until it detects a crossroad and to return which way the robot is facing, and the robots position on the map. After position and orientation is known, the robot waits for another command from master.

Results

The robot works as indented. Line follower works as planned and the robot waits for commands correctly(FIGURE 3). The orientation and position tracking work as wanted.

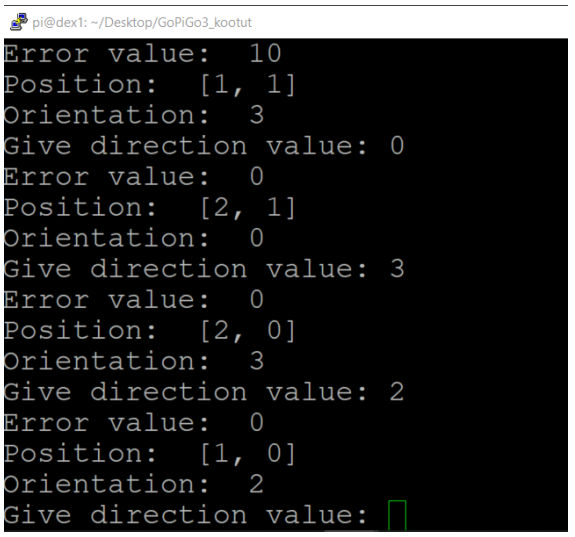

FIGURE 3. SSH control interface

Conclusions

After improving moving grid-lines navigation got easier and the goals were reached in every aspect of the movement features.

References

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3. VarastoRobo GitHub: https://github.com/Jarno-Poikonen/VarastoRobo

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