Autonomous Inventory Tracking Using Robotic RFID Scanning

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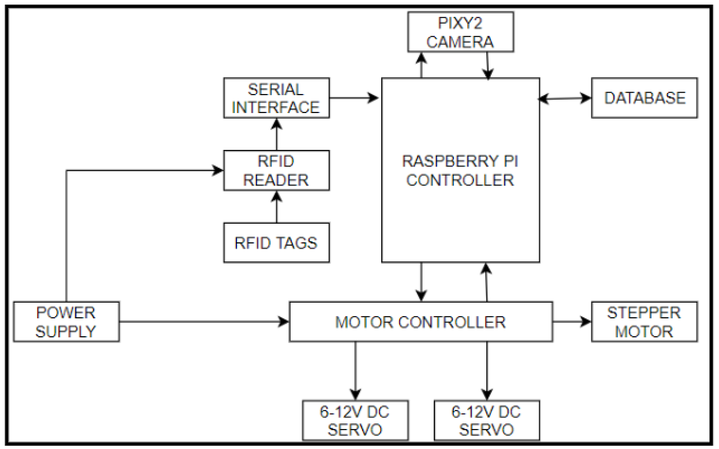
Objective

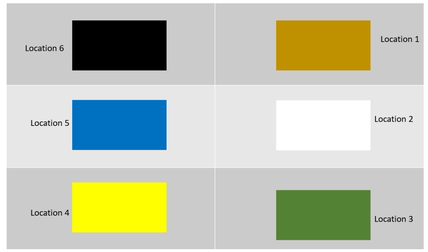
The objective of AITURRS is to create a self-operating robot capable of maneuvering around an environment using the Pixy 2 vision sensor. Using a mounted RFID scanner, the robot reads RF tags associated with individual assets, and determines the location and ID of the asset with a microcontroller. It transmits that data wirelessly to an online database holding the location information of all items in inventory.

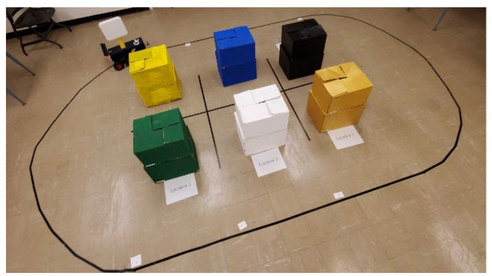


Specifications

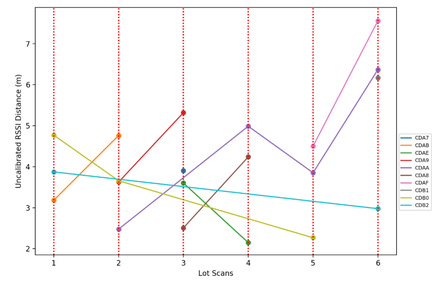
Feature	Specification
Bandwidth	865-928 MHz
Transmit Power	+10 - +31.5 dBm
Max Receive Sensitivity	-84 dBm
Power Supply	24Vdc/2.1A

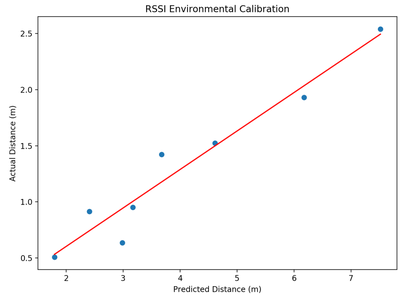
Testing Set-Up

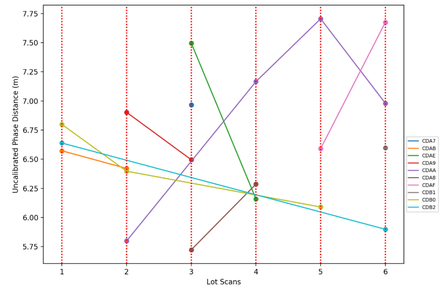


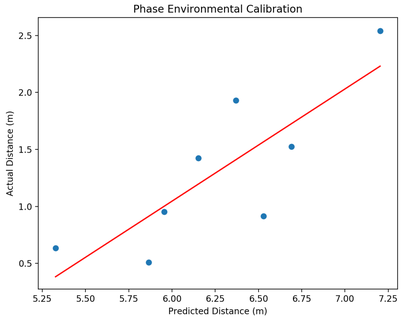


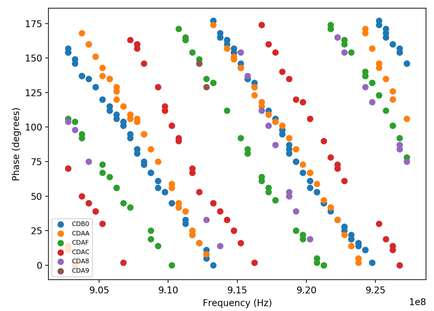
Results







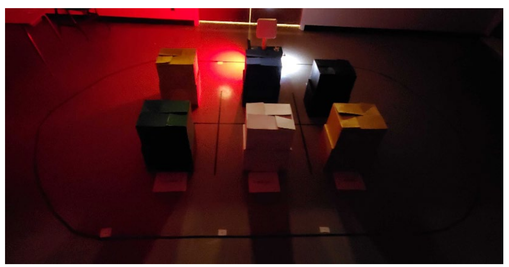




Prototype Materials and Cost

Part	Cost
Raspberry Pi 4	$118.90
Pixy Camera	$60.00
Motor Driver	$25.00
915 MHz Circular Polarity RFID Panel Antenna	$500.00
Chassis	$180.00
NiCD RC Batteries	$40.00
Total	**$923.90**

Night Tracking Capabilities



Contact

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