Human-autonomous teamwork of ground and air vehicles Milestone 2

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Overview

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Milestone 2 Progress Matrix

Task	Completion %	**Yav**	**Young**	**Pop**	To do / Comments
Complete repair of LIMO robots	25%	33%	33%	33%	Need to get wheels back from the Design center.
Defining robot capabilities	75%	25%	25%	50%	N/A
Enabled human-robot cooperation to locate the stationary target	100%	33%	33%	33%	Robot is able to find stationary target with target color.
Interface prototype from the design document	100%	50%	25%	25%	N/A
Abstract Wrapper Layer	100%	33%	33%	33%	N/A
Experimentation with aerial drones	100%	25%	50%	25%	N/A
Complete Control of Ground Vehicles	100%	33%	34%	33%	LIMO PRO

Accomplished tasks

1

Complete repair of LIMO robots

We have got updated design of the wheels for more stability from Design Lab. Currently waiting for them to upgrade

2

Complete Control of Ground Vehicles

After checking the code was successfully running though Hazelcast for turtlesim, we enabled Limos interface-based control and live camera streaming.

3

Interface prototype from the design document + Abstract Wrapper Layer

We have the Interface functional and capable of controlling the LIMO. We have functional screen and keyboard controls; there is a live camera feed from the robot.

4

Experimentation with aerial drones

Piloted the drones with the default control methods given. Later, checked if it was
1. ROS2 compatible
2. Hazelcast available

5

Enabled human-robot cooperation to locate the stationary target

With Roomba code, the robot can search the map. When the target is spotted, the robot moves toward it. The human can take direct control when needed.

Interface Demo

Milestone 3 Plan Matrix

Task	**Yav**	**Young**	**Pop**	**To do**
Complete repair of LIMO robots	33%	33%	33%	Reassemble wheels , update & install software for remaining LIMOs
Defining robot capabilities	33%	33%	33%	Search for Parrot, Unitree's capability and their specs
Multi-agent view in the interface	33%	33%	33%	Show multiple cameras in the control-website
Autonomously find a moving target	33%	33%	33%	Upgrade current target algorithm to track moving target
Demonstrate multi-agent coordination	33%	33%	33%	Make the system capable for multiple robots running concurrently
Drone integration	33%	33%	33%	Develop code for drone operation(Basic)

Questions?