UGV ITX setup guide

This document outlines how to set up the UGV ITX in case it needs be re-flashed. We managed to brick the whole system at least once 😊.

The original guide can be found here and it is similar to this customized guide for the STAD project.

Instead of using the ITX-computer, it is also possible to also install a Jetson TX2 computer (MDU had several of these in Fall 2023). If desired, refer to this guide.

Prerequisites

- ITX computer
- Ethernet connection
- Keyboard
- Monitor
- USB drive
- Balena Etcher or any other .iso burning tool such as Rufus. (We prefer Balena because it's hard to make any mistakes).

Steps

1. Download the latest 64-bit clearpath-universal-noetic image here. This will ensure that you have the most up-to-date ROS1 package together with an Ubuntu 20.04 Focal Fossa server distribution as operating system.

2. Connect your robot PC to wired internet access, a keyboard, and a monitor. Make sure that the PC is connected to shore power, or the Husky battery is fully charged.

3. Boot your robot PC from the USB drive, and let installer work its magic. If asked for a partitioning method choose *Guided - use entire disk and set up LVM*.

4. The setup process will be automated and may take a long time depending on the speed of your internet connection.

5. Once the setup process is complete, the PC will turn off. Please unplug the USB drive and turn the PC back on.

6. On first boot, the username will be administrator and the password will be clearpath. You may use passwd utility to change administrator account password.

7. To setup a factory-standard Husky robot, ensure all your peripherals are plugged in, and run the following command:

```
rosrun husky_bringup install
```

The install script will configure a ros upstart service, that will bring up the base Husky launch files on boot. The script will also detect any standard peripherals (IMU, GPS, etc.) you have installed, and add them the service.

Testing base configuration

1. To test your configuration, start the background service with the following command:

```
sudo systemctl start ros
```

2. The COMM light on your Husky should go from red to green. You can check that the service has started correctly by checking the logs:

```
sudo journalctl -u ros
```

3. Your husky should now be accepting commands from your joystick. The service will automatically start each time you boot your Husky's PC. To set up the Wireless PS4 controller, refer the *Wireless PS4 controller setup*-guide. A wired Logitech F310 or F710 controller should work automatically.

Installation of STAD project packages

To install software packages that reads sensors connected to the ITX or enables data communication to PX2 or UAV, then refer to the relevant READMEs in the STAD git repository for installation, development, and usage.
https://github.com/MDU-C2/Shuttle