21AIE212 Robotics Operating System and Robot Simulation
Group-7
ROS-Enabled Surveillance Robot

Group Members

Abhinandhu A - AM.EN.U4AIE20002
Hariprasad S - AM.EN.U4AIE20035
Mahadev M - AM.EN.U4AIE20045
Maddala H S M Krishna Karthik - AM.EN.U4AIE20046
Marasani Jayasurya - AM.EN.U4AIE20048

Resources referred

https://ubuntu-mate.org/download/arm64/
This link is used to download the Ubuntu Mate 20.04 operating system for raspberry pi. In this link we can download the ISO image file which can later be used to flash the operating system using balena etcher.
https://www.balena.io/etcher/
This link is used to download the balena etcher flashing tool. This is used to flash the operating system so that the operating system can be installed in raspberry pi.
http://wiki.ros.org/noetic/Installation/Ubuntu
This link is used to install the Robotic Operating System Noetic in ubuntu mate. In this link all the necessary commands are given and clear documentation also given on how to install ros operating system in linux.
https://www.raspberrypi.com/documentation/
This link is used to know the functionalities of raspberry pi. This link provides the information and documentation of raspberry pi which was very useful in connecting and using the raspberry pi while doing the project.
https://components101.com/modules/l293n-motor-driver-module
This link is used to know how to use the motor drive module. This link provides the necessary information about how to control the L298N motor drive which is used to control the DC motors using the raspberry pi.
https://www.electronicshub.org/raspberry-pi-l298n-interface-tutorial-control-dc-motor-l298n-raspberry-pi/
This link is used to know about the integration between raspberry pi4 and L298N motor drive which is used to control the robot movement from software level.
https://raspberrypi-guide.github.io/electronics/using-usb-webcams
This link is used to know how to connect the USB-WebCam to the raspberry pi. This link provides the necessary information about integration of USB-WebCam and raspberry pi. Also, this link provides the python programming of USB_WebCam integration using Robotic operating system.

Source code

Module 1: Raspberry pi 4 integration with L298N Motor Driver and ROS
https://gist.github.com/elktros/440391fc1c5e921a165c614d407cad51
Module 2: Raspberry pi 4 integration with USB-WebCam and ROS
https://www.youtube.com/watch?v=2l913YwWYe4&t=113s