Requirements

Software Requirements:

- You will require a computer at least 4GB ram (not optimal), and 50GB available in the disk.
- The following software is required
    - Ubuntu 18.04 (using a double boot setting, if necessary)

https://releases.ubuntu.com/18.04/

    - ROS Melodic

http://wiki.ros.org/melodic/Installation/Ubuntu

    - OpenCV

https://docs.opencv.org/4.x/d2/de6/tutorial_py_setup_in_ubuntu.html

- Additional package for ROS will be needed. Use the following commands to install them.
    - Joint state publisher gui for rviz
      ```
      sudo apt install ros-melodic-joint-state-publisher-gui
      ```
    - ROS control
      ```
      sudo apt-get install ros-melodic-ros-control ros-melodic-ros-controllers
      ```
    - Open CV and tensor flow
      ```
      sudo apt update

      sudo apt install python3-dev python3-pip

      pip3 install --user --upgrade tensorflow

      sudo pip3 install -U rospkg

      python3 -m pip install --upgrade pip

      pip3 install opencv-python
      ```
    - Gazebo packages and MoveIt
      ```
      sudo apt-get install ros-melodic-gazebo-ros-pkgs ros-melodic-gazebo-ros-control

      sudo apt install ros-melodic-moveit ros-melodic-moveit-visual-tools
      ```

Hardware Requirements (for real robot testing):

- PuzzleBot Jetson Edition
- Screen, keyboard, mouse for Jetson
- White tape, dark surface
- Power bank with 3A and 2 USB ports
- USB C cable
- A red object, e.g., a piece of paper