

BANDIT / TIAGO - OPERATOR / TOUR GUIDE

Tiago is a robot designed by Pal Robotics. The Bandit / Tiago Tour Guide team has created the following for use inside the VXLab in building 91 at RMIT. Unless reconfigured you cannot use Tiago in any other space. The following will be an introduction and will assume that you understand the Robot Operating System (ROS) to a beginner degree.

Please note that Tiago is a heavy machine and cannot be operated unless you have appropriate inductions --- contact vxlab staff.

Tiago Generic Startup (power on)

1. Unplug Tiago and switch the key to the right most position
2. Push down and twist the emergency stop button and pull up to release
3. Press and hold the green start button adjacent to the on-screen display until the button lights up solid green.

If the button flashes, please proceed to step 2 to release the emergency button

4. Step away from Tiago and wait 3-5 min until the head raises

Bandit Tour Guide setup

5. Proceed to “pal robotics computer” and launch an empty terminal (username: pal, root username: palroot)
6. Follow the command to open a terminal for rviz:
 - **sudo bash** (The password will be given by a member of staff in the VXLAB)
 - `cd /home/pal`
 - `./run-rviz`
 - (alternatively: **roslaunch rviz rviz -d /root/tiago_public_ws/src/omni_base_navigation/omni_base_2dnav/config/rviz/advanced_navigation.rviz**)
7. Rviz should launch showing Tiago and the map of the room, please **note the position and direction of Tiago** on the rviz map
8. If the position of Tiago is incorrect in Rviz, click 2d pose estimate in Rviz click and hold at the position he is physically compared to in the map and point the arrow in the direction to where Tiago is facing. Red lines should appear spread out and both spaces should match what is seen.
9. ***(Before proceeding further, be aware of where Tiago is in the room and warn other occupants, as the controller will be used to manually move Tiago)***
10. Tiago comes with a PS2 style controller which should be left of Tiago

11. *Calibrate the Navigation subsystem*: Press **START** on the controller and move Tiago around the room slowly using the left joystick (forward, back, left, right movement) and the right joystick (for rotation left/right), until the Rviz position and Tiago position match. Press **START** again to stop using the controller; move the sticks to verify you cannot move Tiago.
12. Open a new Terminal and type ssh "pal@tiago-219c"; password is "pal".
13. Once connection is successful start the tour guide by using this command `./launch_Tour.sh` This process includes a full build and deployment of the tour guide system since Tiago is fully reset on a hard restart. (When prompted for admin password, enter "palroot")
14. When the Tour Guide is active, Tiago will speak
15. To start a conversation, say "Hey Tiago" or "Hey Bandit" followed by a question, e.g. "Hey Tiago, how are you". Tiago will say "hmmm" when he has heard you correctly
16. To get Tiago to navigate towards something say, "Hey Tiago/Bandit, can you take me to / show me" **WARNING: TIAGO WILL NOT VERIFY NAVIGATION; HE WILL START TO MOVE**

Please keep controller on standby, if Tiago goes into tables or chairs or walls or any object press the START button on the controller or the EMERGENCY STOP button on the rear of Tiago.

17. If you want Tiago to show a video ask "Hey Tiago/Bandit, can you show me the Rosie Light Saber video" or "Hey Tiago/Bandit, can you show me Tiago"
18. If you want Tiago to move to the RACE lab, ask "Hey Tiago/Bandit, can you show me the race lab" Tiago will move to the door. **Warning: this is buggy so please be careful.** When Tiago is at the door and speaks, press and hold the door open to the VXLab, say "Hey Tiago/Bandit, the door is open", Tiago will navigate to the next room. Repeat step 16 from going back into the room.

Bandit Tour Guide Shutdown

1. (Optional) say "Hey Tiago/Bandit, that will be all" (navigates to the screen and asks users to use the QR code).

Tiago Generic Shutdown

2. Hold Tiago's Head and press and hold the green on/off button.
3. When Tiago's Head goes floppy slowly let go until the head is in a stable down position.
4. Press the emergency stop button until click
5. Turn the key counterclockwise to the up position
6. Push Tiago back into the charging spot and charge Tiago by lifting the flap and securely pushing the charger back in.

