

Chapter 2 — Unified Remote Control (Rosmaster R2)

[DIAGRAM — CONTROL METHODS OVERVIEW]

Wireless Controller → Robot

Keyboard Control → Robot

Mobile App Control → Robot

All methods send commands to the same ROS topic: /cmd_vel

1. Overview

This chapter explains all remote-control methods for the Rosmaster R2. All methods ultimately control the robot by publishing to **/cmd_vel**.

2. Wireless Gamepad Control

- Plug the USB wireless receiver into the Xavier NX.
- The controller should auto-pair.
- Launch joystick node:

```
roslaunch teleop_twist_joy teleop.launch
```

This maps joysticks → robot motion.

3. Keyboard Control (Teleop)

To drive the robot using your keyboard:

```
rosrun teleop_twist_keyboard teleop_twist_keyboard.py
```

Use W/A/S/D for forward/left/back/right.

4. Mobile Phone Control

- Connect phone to same network as robot.
- Use a mobile teleoperation app OR a custom web teleop page.
- Sends commands to /cmd_vel just like the joystick or keyboard.

5. Command Flow Diagram

All control methods → /cmd_vel → Motor driver → Robot motion

6. Safety Tips

- Start with low speed (**0.15 m/s max**).
- Always test controller input in a clear space.
- Keep a hand on the stop button or key.
- If robot behaves strangely, release controls immediately.