

# **Rover Bluetooth Control**

Control your Rover using Bluetooth from a phone or tablet.

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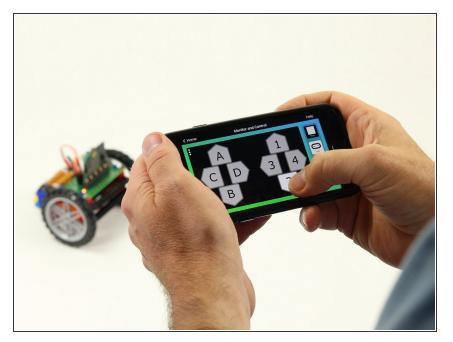
## INTRODUCTION

Control your Rover using Bluetooth from a phone or tablet.

Using a GamePad (or "DPAD") controller you can make the Rover forward & backward, and spin in either direction. You can also open and close the Gripper and adjust the speed of the Rover.

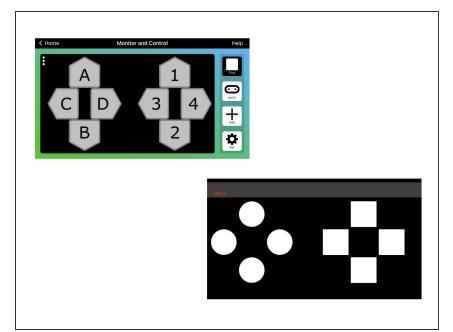
TOOLS:	DARTS:
Computer (1)	<ul> <li>Bit Board Rover Kit (1)</li> <li>micro:bit (1)</li> <li>Phone or Tablet (1)</li> </ul>

#### Step 1 — Bluetooth Control



- You can control your Rover using Bluetooth from a phone or tablet along with an app that supports the micro:bit's Bluetooth Messaging Event System.
- If you are using an iPhone or iPad you can use the GamePad (or "DPAD") controller found in the "Monitor & Control" section of the micro:bit iOS app.
  - Find the iOS app here: <u>https://apps.apple.com/gb/app/mi</u> <u>cro-bit/...</u>
- If you are using an Android phone or tablet you can use "Bitty Controller" which has its own "DPAD" controller option.
  - Find Bitty Controller in the Google Play store here: <u>https://play.google.com/store/app</u> <u>s/detai...</u>
  - Find more information about Bitty Controller here: <u>https://bittysoftware.blogspot.com</u> /p/app...

#### Step 2 — The DPAD



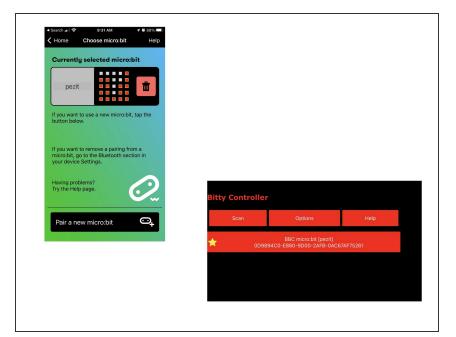
- The GamePad may look familiar if you've ever used a video game controller.
- The GamePad will control the Rover in the following manner:
  - 1 will move forward, 2 will move backwards.
  - 3 will spin to the left, 4 will spin to the right.
  - C will open the gripper, D will close the gripper.
  - A will increase speed, B will decrease speed.
- Keep in mind you can change what any of these controls do by editing the code.

### Step 3 — Load the Code



- If you've never used a micro:bit before you'll want to check out this guide: <u>Bit Board V2 Setup and Use</u>
- We're going to load the following code for our Rover Bluetooth program: <u>https://makecode.microbit.org/\_7PP</u> <u>2ekbUf...</u>
- Note: This code will work with either of the apps mentioned in Step 1.

## Step 4 — Pair with micro:bit



- You'll need to pair the phone or tablet with the micro:bit in your Rover.
- Please see the extensive guide to pairing provided on the makecode.microbit.org web site: <u>https://makecode.microbit.org/v0/ref</u> <u>eren...</u>
- Once you pair your device with the micro:bit on the Rover you can use the GamePad to control it!

#### Step 5 — Take it Further - Exploring the Code

bluetooth io pin service		or	event from MES_DPAD_CONTROLLER_ID - with value MES_DPAD_BUTTON_1_DOW
bluetooth button service			spin other way pin P14 (write only) ▼ with speed speed ▼
set speed - to 50			spin one way pin P13 (write only) ▼ with speed speed ▼
set angleOpen ▼ to 105		or	event from MES_DPAD_CONTROLLER_ID - with value MES_DPAD_BUTTON_1_UP
set angleClosed ▼ to 135	e e e		turn off motor at pin P14 ♥ turn off motor at pin P13 ♥
servo write pin P15 (write only	/) 🔹 to 🛛 angle(	Dpen 🔻	

- The **on start** block has two commands to enable the Bluetooth services we need.
- The rest of the code in the **on start** block is just like other Rover code.
- The other blocks are all on event blocks, which are looking for data from the **MES\_DPAD\_CONTROLLER\_ID** with a specific value.
- Besides the on start block, each dark gray block looks for a button to be down or up, and reacts appropriately.
- While these **Control** blocks look a bit more complex than other blocks, they are pretty easy to explore and use in your code.