

Tank Bluetooth Control

Control your Tank using Bluetooth from a phone or tablet.

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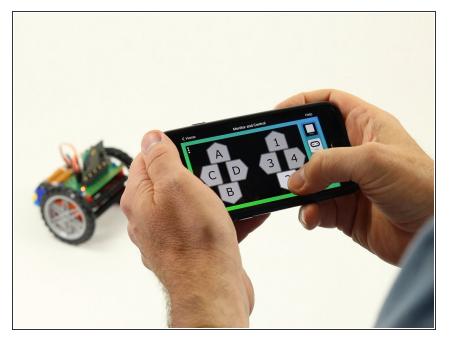
INTRODUCTION

Control your Tank using Bluetooth from a phone or tablet.

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

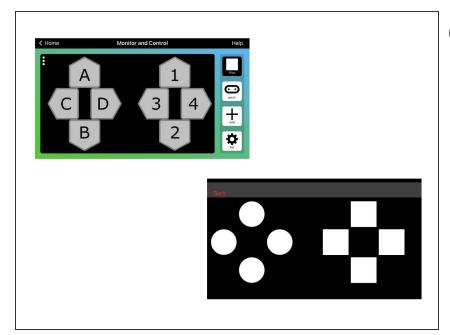
TOOLS:	DARTS:
Computer (1)	 Bit Board Rover Kit (1) micro:bit (1) Phone or Tablet (1)

Step 1 — Bluetooth Control



- You can control your Tank 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 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/mic</u> <u>ro-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/apps</u>/<u>detai...</u>
 - Find more information about Bitty Controller here: <u>https://bittysoftware.blogspot.com/</u> <u>p/app...</u>

Step 2 — The DPAD



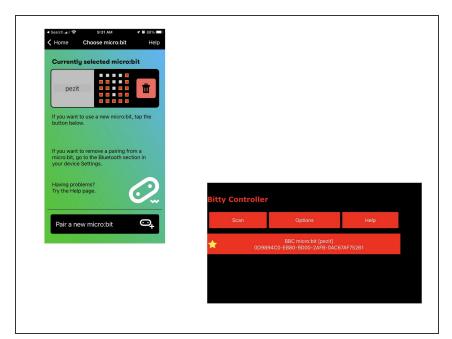
- (i) The DPAD may look familiar if you've ever used a video game controller.
 - The DPAD will control the Tank in the following manner:
 - 1 will move forward, 2 will move backwards.
 - 3 will spin to the left, 4 will spin to the right.
 - C will open the gripper, D will close the gripper.
 - A will 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

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- 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 Tank Bluetooth program: <u>https://makecode.microbit.org/_L9TV</u> kqXcx...
- (i) 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 Tank.
- Please see the extensive guide to pairing provided on the makecode.microbit.org web site: <u>https://makecode.microbit.org/v0/refe</u> <u>ren...</u>
- Once you pair your device with the micro:bit on the Tank you can use the DPAD to control it!

Step 5 — Take it Further - Exploring the Code

bluetooth io pin service				on event from (MES_DPAD_CONTROLLER_ID -) with value (MES_DPAD_BUTTON_1_DO
bluetooth button service				spin other way pin P13 (write only) ▼ with speed ▼
set speed - to 50				spin one way pin P14 (write only) ▼ with speed speed ▼
set angleOpen ▼ to 105				on event from MES_DPAD_CONTROLLER_ID ▼ with value MES_DPAD_BUTTON_1_UP
set angleClosed → to 135	9 9		8 8	turn off motor at pin P13 ▼ turn off motor at pin P14 ▼
servo write pin P15 (write o	nly) 🔻 to	angleC) pen 🔹	

- 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 Tank 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.