

PSoC Academy: How to Create a PSoC BLE Android App
Lesson 8: BLE Robot

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Hello. I'm Alan Hawse and this is Cypress Academy. In the previous lessons I showed you a bunch of detail about writing firmware for BLE as well as building an app for Android phone. Now I'm going to make my 12-year-old son happy by showing you his robot that we built together.

On the website for this class we provide two links to DigiKey that you can use to order all of the parts that were used to build this robot. One link includes the BLE kit along with all of the other parts while the other link includes everything except for the BLE kit. The electrical components including two motors with quadrature encoders, a dual H-bridge, a cable to connect the H-bridge to the PSoC, a battery holder, a switch, and of course the Cypress CY8CKIT-042-BLE kit. The BOM from DigiKey also includes the mechanical components: a plate to mount everything on, motor brackets, wheels, and a roller ball caster.

The motors connect directly into the dual H-Bridge. The two channels from the H-bridge connect directly to the motors. I have mapped the controls for the H-bridge directly to contiguous pins on the PSoC so this handy dandy cable can connect things directly.

There is a bit of wiring to connect the power and the ground to the PSoC kit - and you can see that on the back of the kit - the red is the power lines and the

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black is the ground. Notice that the power connections go through this toggle switch so that I can turn the kit on and off.

Now let me show you how the phone application works. So I click on the application and it starts up. It shows no devices that it can see – that’s good. I turn on the BLE kit, the red light turns on, and as soon as the red light turns on I can see Robot shows up in the list. I press Robot and it brings me to the control screen. There is a control for the left motor and a control for the right motor.

When I turn on the left motor I can have it go from -280, then as I go toward the middle it slows down until it gets to zero, then I can run it the positive direction and it goes up to 305 or 310 or so. When I flip the switch it turns off – that’s cool.

Then I do the other motor – the right motor – and it does the same thing. As I speed up it speeds up to 290 or 300 – there we go. And then as I slow down I get to where it is 0, and then it runs the other direction up to 290 as well.

When I flip the red switch it turns off, and that’s it.

In the next video I’m going to take you through the firmware that’s running on this thing and I’ll show you how to build the app.