

Drive Robot

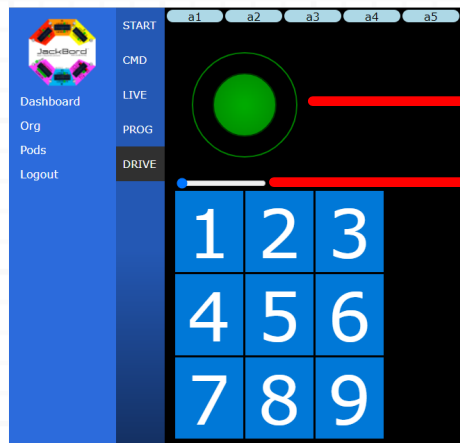
In this project, you will create a robot that can drive around using the DRIVE page on the dashboard, the command line, or a program.

What You Need:

1x	JackBord	1x	MK1-DRV Motor Drive Kit
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Construction Steps:

1. The first thing you want to do is attach the drive motors and wheels to the JackBord. If you have not done this, refer to the **Connecting the MK1-DRV** Motors guide on our website (www.JackBord.org).
2. If you have not done so already, turn on your JackBord, go to the dashboard, create a profile and adopt it. Then, go to the DRIVE page on the left-hand side of the dashboard.



Joystick: Click and drag the green dot within the circle to drive the JackBord

Speed Slider: Click and drag the blue dot along the slider to adjust the speed

Here you can drive the JackBord by clicking and dragging the Joystick around to control the motors. Alternatively, you can use the arrow keys on your keyboard. The scale below the joystick allows you to change the speed of the JackBord. Simply click and drag the blue dot to the desired speed.

You will find that this is the easiest way to drive the JackBord. However, this method means that it cannot drive itself without someone controlling it.

3. There are two more methods to controlling the JackBord's motors, the next of which is via the command line. Go to the CMD page on your dashboard.

The JackBord's speed ranges from 0 to 100, which represents the percentage of power that is being supplied to the motors. So if we set the speed to 50, the motors would move forward at 50% power. To make the motors go backwards, we would use the same range, but negative values. So -50 would make the motors go backwards at 50% speed.

The table below outlines the different commands used to control the motors:

Command	Function	Example
bms [speed]	Both Motors Speed, controls the speed of both motors	bms 50
lms [speed]	Left Motor Speed, controls the speed of the left motor only	lms 100
rms [speed]	Right motor Speed, controls the speed of the right motor only	rms -100
sbms [left] [right]	Set Left and Right Motor Speeds, lets you set the speed of the left and right motors to different values with one command	sbms -80 60
stop	Stops both motors	stop

Give some of these commands a go and try making your JackBord drive in a square. Once you are comfortable with the commands, try incorporating daisy chains (|) and delays (dly). For example:
sbms -80 60|dly 500|bms 100|dly 750|stop

4. The third method of controlling your robot's drive motors is by running a program. In the dashboard, go to the PROG page. Copy and paste the code from page 3 into a program page, click save, and then run it.

If you look through the program, you will see that it incorporates the motor commands and delays. Feel free to play around and change these and see how it affects your robot's movement.

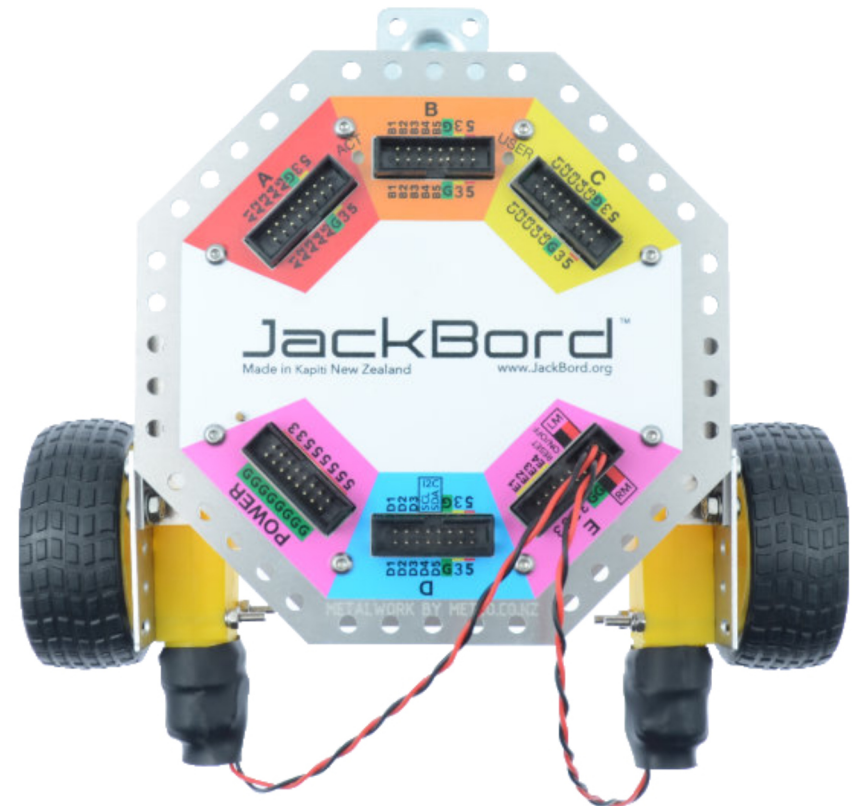
Code:

```
--- Drive Robot
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prog_vars =
    d/number 0
prog_vars.
prog_start =
    print "I am Speed"
prog_start.
prog_loop =
    -- Left Turn
    sbms -50 50
    dly 375
    stop
    -- Straight Forward
    sbms 100 100
    dly 500
    stop
prog_loop.

prog_stop =
    print "Ka-Chow!"
prog_stop.
```

Completed circuit



Next Steps:

Try incorporating some lights in your motor program by using the USER LED commands.

Can you write a program that drives your JackBord through a course?