# BUILD A ROBOT

BY SANJAY AND ARVIND SESHAN
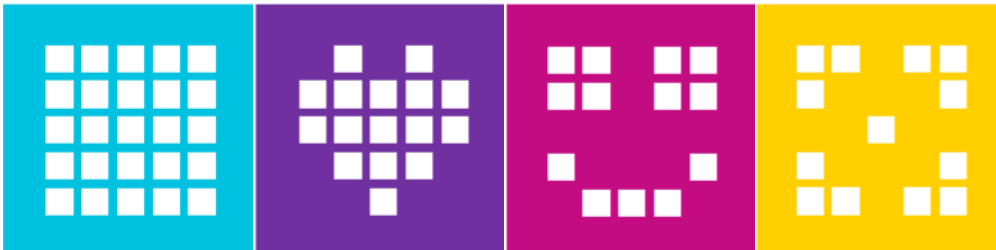
SPIKE PRIME ROBOT

- For our lessons, a basic robot build with two driving motors would be ideal. You can attach sensors and additional motors as you need

- We provide build instructions for a basic training robot with all motors and sensors from SPIKE Prime attached. (Droid Bot IV)

- As we grow our content, we will add new training models

- *No matter what robot you use, make sure you pay attention to what port motors and sensors are connected to in any challenge solutions provide*

Droid Bot IV
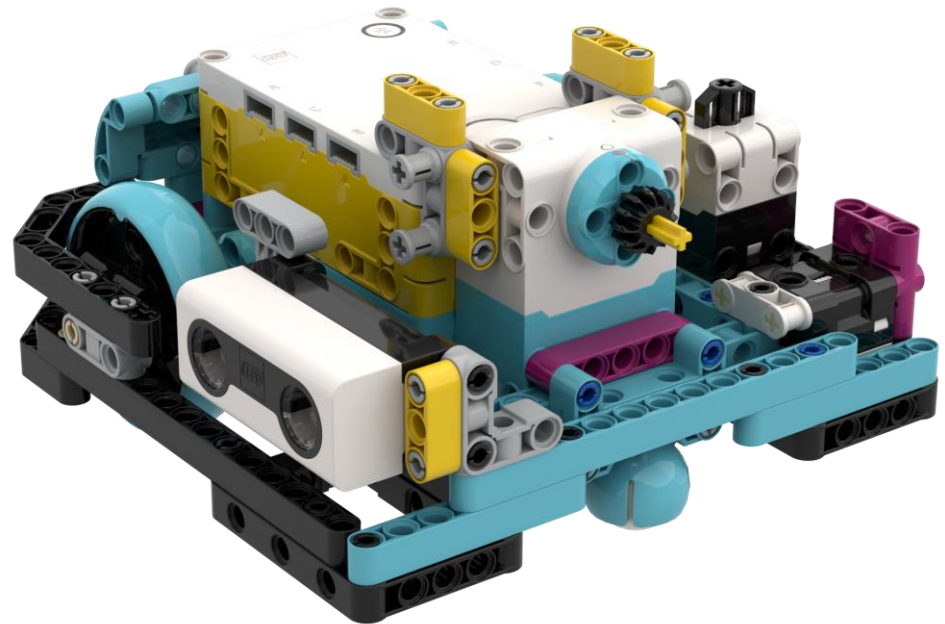
DROID BOT IV

- Droid Bot IV is our custom training robot

- It only uses parts available in the SPIKE Prime Set (45678). No Expansion Set needed.

- All sensors are pre-mounted for use in our lessons

- The wheel size is 56mm and the motors and sensors are configured as below.

- Build instructions have been provided for building this robot

Droid Bot IV Configuration
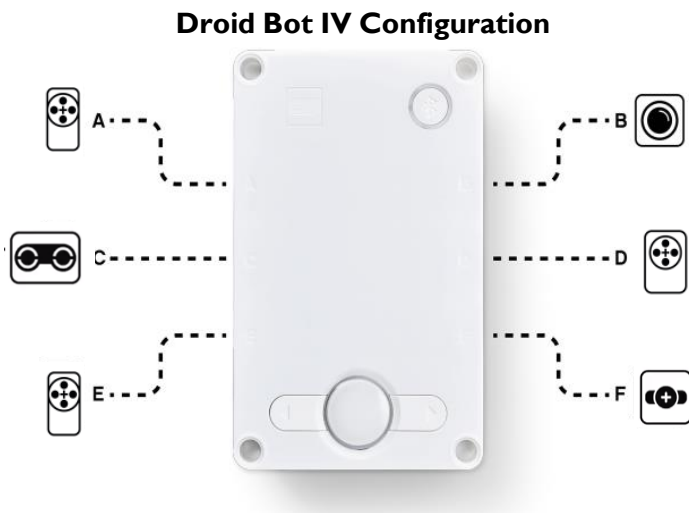
ADVANCED DRIVING BASE (ADB)

- You can also use the Advanced Driving Base (ADB).

- It will require the SPIKE Prime Set (45678) as well as the SPIKE Prime Expansion Set (45680).

- Instructions to build this model are available inside the SPIKE Prime and software online:
  https://education.lego.com/en-us/lessons/prime-competition-ready/assembling-an-advanced-driving-base

- Please note how the basic ports are configured on the diagram on the right. Since all the sensors cannot start off connected to the Hub, you will have to disconnect ports so you can add the Distance and Force Sensors used in our lessons

- The color sensors on ADB are also not optimally positioned for using in Color Mode. (see next slide)

ADB Default settings
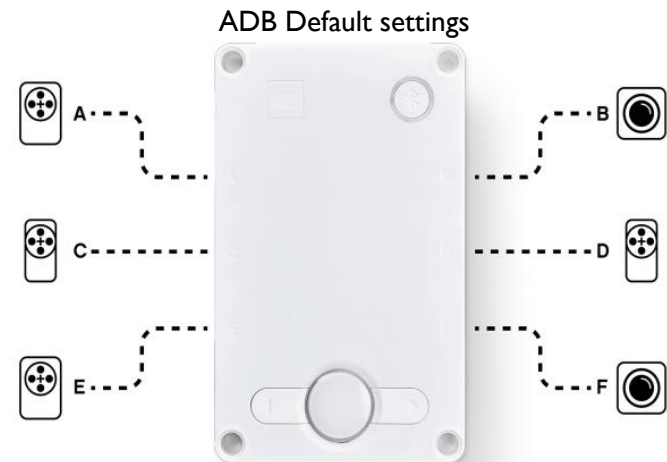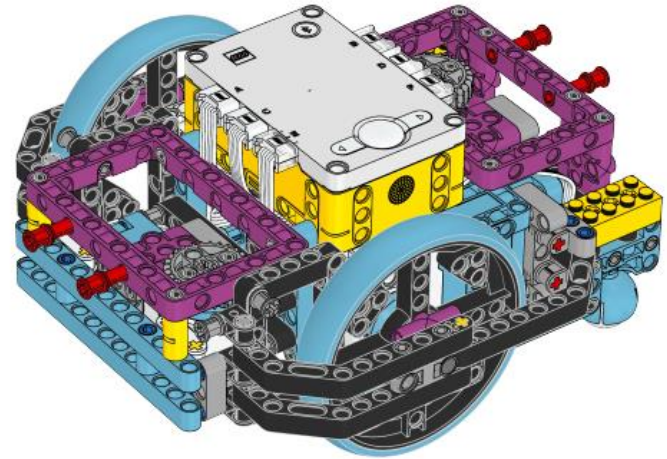
NOTE: COLOR SENSOR POSITION

- To use the color sensor in Color Mode to find a line or line follow with the Advanced Driving Base (ADB), you will have to make a modification to the design

- The standard location for the color sensor is too low according to the SPIKE Prime Specifications. Black does not read correctly in Color Mode using electrical tape lines or a FIRST LEGO League challenge mat.

- *The color sensor on ADB is mounted at about 8mm off the ground, but the optimal distance for mounting the sensor according to the specs is 16mm.*

- The solution is to raise the color sensor. Instructions are provided on this website

16mm
2M (2 LEGO Modules)
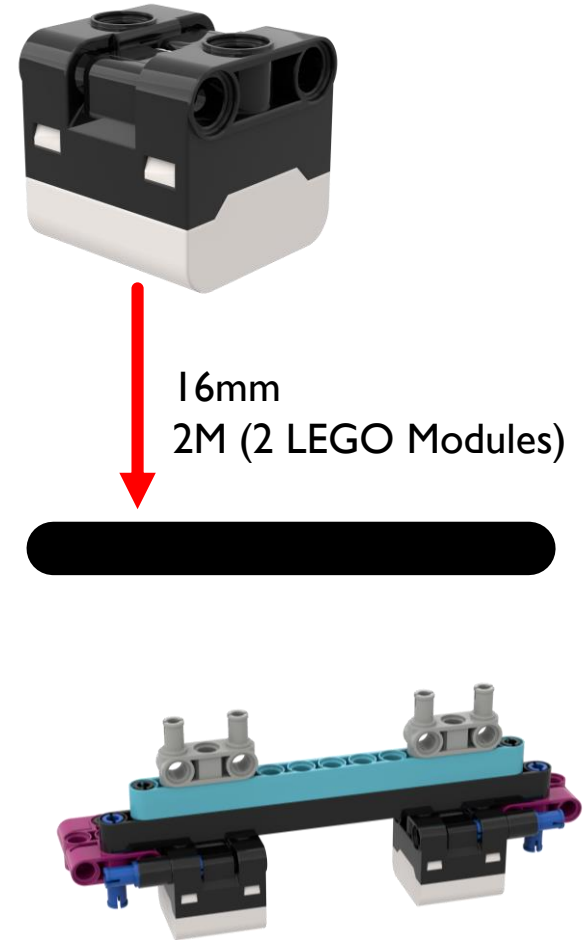
CREDITS

- This lesson was created by Sanjay Seshan and Arvind Seshan for SPIKE Prime Lessons
- More lessons are available at www.primelessons.org