

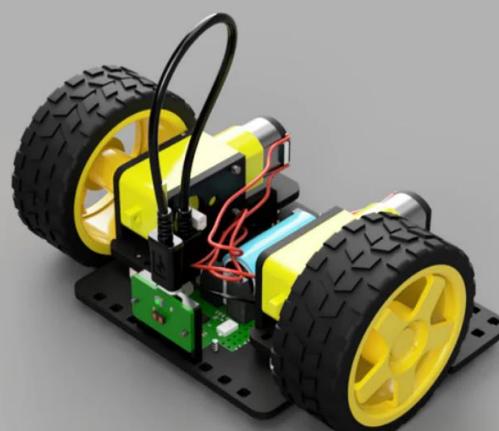


# Scout Quick Start Guide

Build and drive your personal Robot!

Drive your  
Scout Robot!

Build and play robot that uses as student friendly coding environments based on block coding or JavaScript.



## Features

- Control robot via Scratch software or Virtual Remote
- Various code examples provided across every platform
- Simultaneous Motor control
- Bluetooth 5 for increased range
- Access to STEM based lessons, experiments, and coding examples to enrich the learning experience

## Designed for teaching

- Robotics
- Computing
- Circuitry
- IoT
- Logic
- Block Coding

## package includes

- 1 Scout Robotics Kit
- 1 MODi sensor
- 1 Battery Charger
- Unlimited access to MantisCode

## MantisCode is compatible with





**Charge your  
battery First!**



### ICR 18350 (Use Only)

- **Size: (18.3 x 35 x 35 mm)**
- **Maximum Continuous Charging Current (1A)**
- **Standard Continuous Charging Current (220mA)**
- **Charging Temp: (41F to 115F)**



**Battery Polarity (+)**

Positive terminal of your battery should be inserted this direction.



**Charging Temp: 41F to 115F**

**Charging Temp: 41F to 115F**

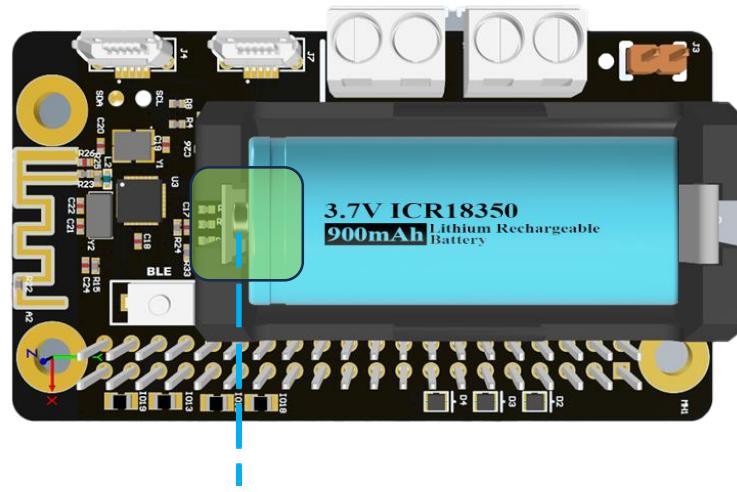


# Charge Complete

**Battery now ready to power your  
Mantis Scout Robot!**

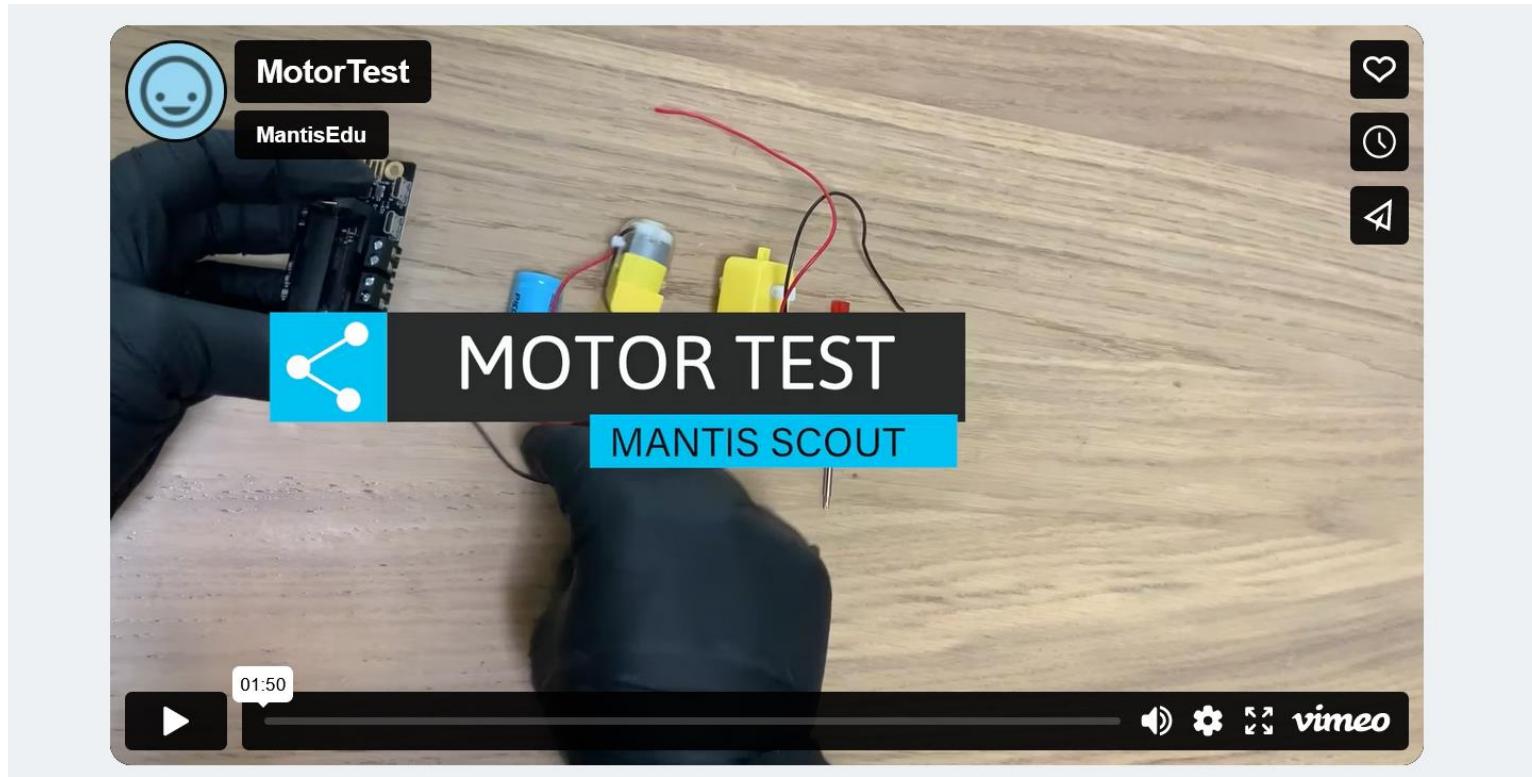


**Check polarity on  
the install!**



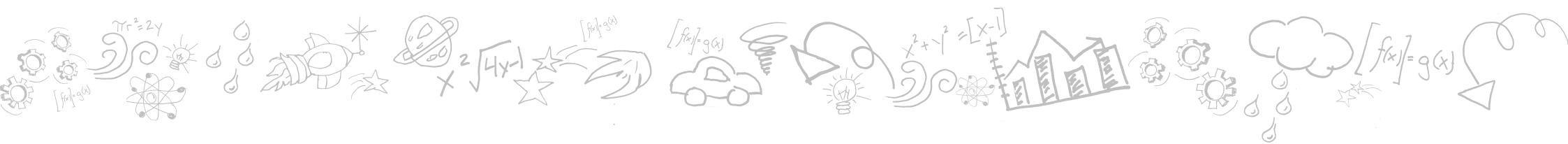
**Battery Polarity (+) Direction**

Positive terminal of battery should be facing this way.



**Before you code, now would be good time to check out the Motor Test Example:**

<https://scout.mantismc.com/quick-start-guides/motor-setup>



Follow this link to access the screen below.

<https://scout.mantismc.com/scratch-examples/mantiscode>

Mantis Scout

Mantis Scout Documentation

QUICK START GUIDES

- Rechargeable Battery Care
- Motor Setup Test
- Enable/MODI Test
- MODI Red LED Error

ASSEMBLY GUIDE

- Animated Video Tutorials
- Live Video Tutorials**
- Printed Instructions
- 3D CAD Model

SCRATCH EXAMPLES

- MantisCode**
- Connect Sensor
- Modi Sensor
- Condition Based Logic based on Sensor Values
- Functions
- Avoid Obstacles
- File Logging
- RGB Sensors
- LED Sensors

JAVASCRIPT EXAMPLES

- Motor Setup
- Man-In-The-Loop Obstacle Avoidance Tutorial
- Lidar Obstacle Avoidance Tutorial
- Support

Powered by GitBook

## MantisCode

MantisCode is a browser-based software, that's based on the Scratch programming language. With MantisCode, you can connect to MantisEDU sensors for data collection and other experiments.

Using MantisCode does not require any software to be installed. The user must simply have access to an internet connected device that runs a modern web browser that supports WebBluetooth. Most modern web browsers support this, with the exception of Safari on MacOs, and Firefox. Google Chrome or Edge are recommended for best results. Mobile browsers are not typically supported.

To access MantisCode, visit <https://mantiscode.azurewebsites.net/app/>.

**Mantis Sensors**

Example projects that connect to Mantis Sensors. These are pre-built examples to help getting you started.

**Scratch 3 Playground**

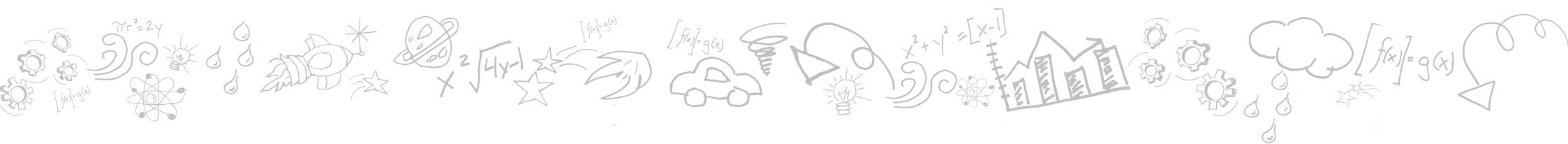
Start a blank Scratch 3.0 project. This includes access to blocks for interacting with the Mantis sensors.

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**MantisCode Sensor Code Examples**

Below you will find links to examples for each of the supported Mantis™ sensors. Click on the sensor of interest to access examples. Find out more about Mantis at [www.mantisedu.io](http://www.mantisedu.io)

**Mantis Code Link**  
Click here for preloaded Scratch Examples



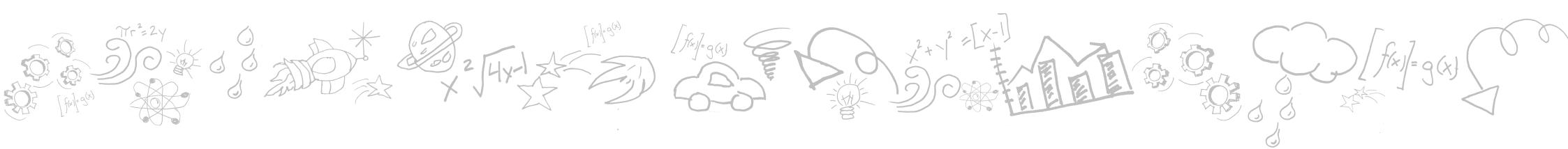
**Mantis Code Link**  
Navigate the Sensors tile  
to the Scout Examples

**Coding with MantisCode.**

**Mantis Sensors**  
Example projects that connect to Mantis Sensors. These are pre-built examples to help getting you started.

**Scratch 3 Playground**  
Start a blank Scratch 3.0 project. This includes access to blocks for interacting with the Mantis sensors.

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MantisCode

mantiscode.azurewebsites.net/app/lessons.html

## Ⓜ MantisCode Sensor Code Examples

Below you will find links to examples for each of the supported Mantis™ sensors. Click on the sensor of interest to access examples.  
Find out more about Mantis at [www.mantisedu.io](http://www.mantisedu.io)

Mantis Scout

Mantis Scout Sample Programs.

Mantis Motor Hat

Control the Mantis MTH

Modi

Measure acceleration, distance and motion.

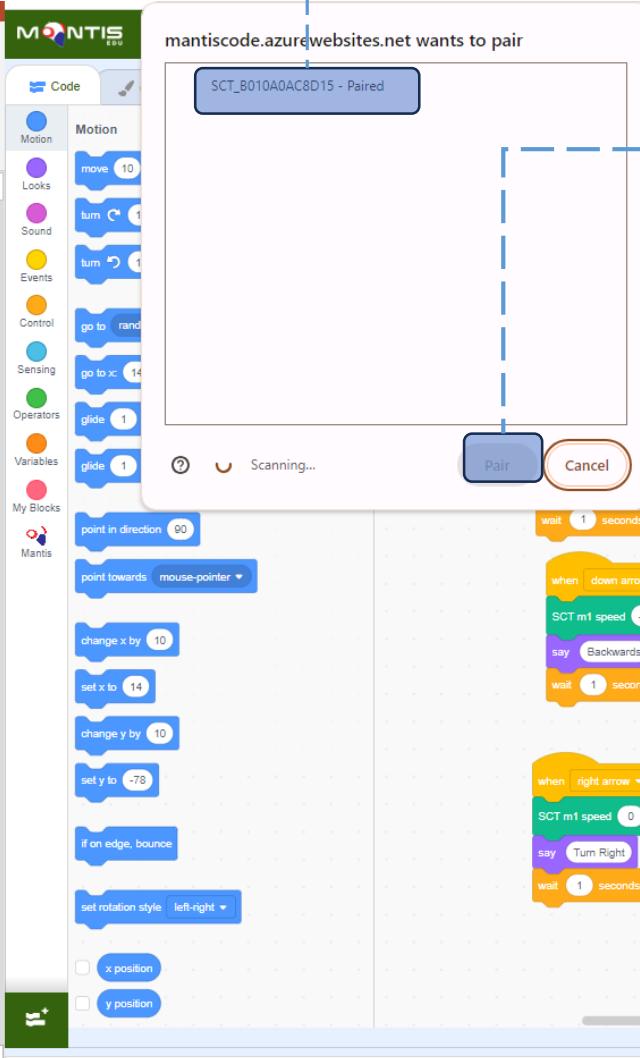
**Mantis Code Link**  
Navigate the Sensors tile  
to the Scout Examples





## Step 2

Click to select the desired sensor you want to connect with



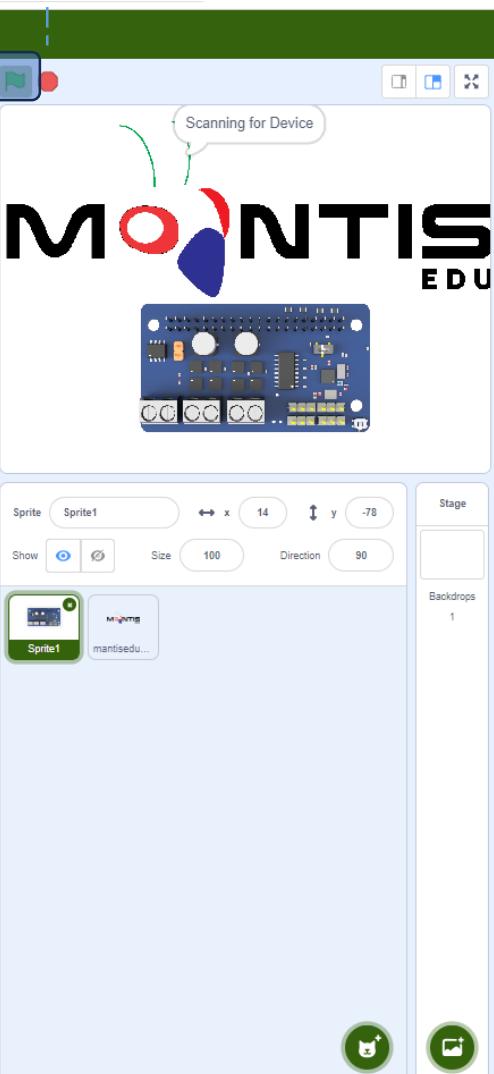
## Step 3

Press the Pair button to complete the process



## Step 1

Press the Green Flag to Start the Program





### Stop Command

Press the Red Circle to stop the Program

**SCT\_PWM\_Controls**

**Code**   **Costumes**   **Sounds**

**Variables**

- Motion
- Looks
- Sound
- Events
- Control
- Sensing
- Operators
- Variables
- MODi Shield**
- ModShield\_inches
- moving
- r1
- r2
- speedbackwards
- speedforward
- w1
- w2
- set Amps to 0
- change Amps by 1
- show variable Amps
- hide variable Amps
- Make a List
- My Blocks
- Make a Block

**In order to Enable the MODi Sensor, you must press S to set it up. Once you've done this, you don't have to do it again.**

**when s key pressed**  
SCT: turn mod. on 1  
say Reconnect Device to Start. for 2 seconds

**when d key pressed**  
disconnect from SCT 1  
Disconnect the sensor

**when I receive connected**  
set MODi Shield to 0  
forever  
set MODi Shield to SCT: 1 distance

**when space key pressed**  
SCT m1 speed 0 duration 0 m2 speed 0 duration 0 1  
say stop  
wait 1 seconds

**when up arrow key pressed**  
SCT m1 speed 100 duration 0 m2 speed 100 duration 0 1  
say Forward  
wait 1 seconds

**when down arrow key pressed**  
SCT m1 speed -100 duration 0 m2 speed -100 duration 0 1  
say Backwards  
wait 1 seconds

**when left arrow key pressed**  
SCT m1 speed 100 duration 0 m2 speed 0 duration 0 1  
say Turn Left  
wait 1 seconds

**when right arrow key pressed**  
SCT m1 speed 0 duration 0 m2 speed 100 duration 0 1  
say Turn Right  
wait 1 seconds

**Sprite1: MODi Shield**

Sprite: Sprite1   x: 14   y: -78  
Show:  Size: 100   Direction: 90

Stage: Backdrops: 1

Sprite1: MODi Shield

Sprite: Sprite1   x: 14   y: -78  
Show:  Size: 100   Direction: 90

Stage: Backdrops: 1

Sprite1: MODi Shield

Sprite: Sprite1   x: 14   y: -78  
Show:  Size: 100   Direction: 90

Stage: Backdrops: 1

**Modi Shield Value**  
If the Modi is enabled, the distance value will display here.

**Verify Connection**  
Once connection, the status label should now say connected. Now, you can issue commands using the keyboard.

The Scratch script for the SCT\_PWM\_Controls project includes the following key components:

- Variables:** A variable named "Amps" is used to store motor speed values.
- Events:** Scripts are triggered by key presses (S, D, Space, Up, Down, Left, Right arrows) and a "when I receive connected" event.
- Sensing:** A "when I receive connected" script sets the "Modi Shield" variable to 0 and loops to set it to the "SCT: 1 distance" value.
- Control:** Scripts handle sensor connection (S key) and disconnect (D key).
- Motion:** Scripts control two motors (m1 and m2) based on key presses (Space, Up, Down, Left, Right arrows) to move forward, backward, left, right, or stop.
- Sound:** Scripts include "say" blocks for "Reconnect Device to Start", "Forward", "Backwards", "Turn Left", "Turn Right", and "Connected".
- Backpack:** A "Modi Shield" variable is used to store distance values.

### Program Command Legend

#### Space Bar Command

Press the space bar to stop both motors

#### Right Arrow Command

Press the right arrow motor 2 only

#### Up Arrow Command

Press the up arrow to move both motors forward

#### Left Arrow Command

Press the left arrow to move motor 1 only

#### Down Arrow Command

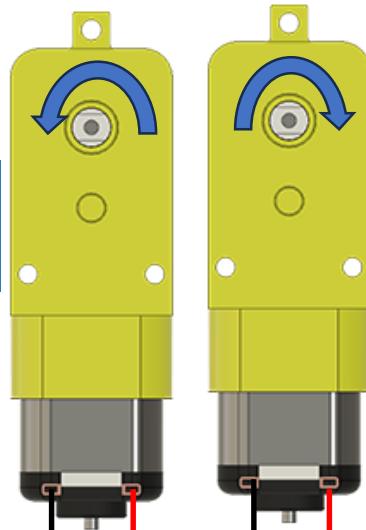
Press the down arrow to move both motors backwards

#### D Key Command

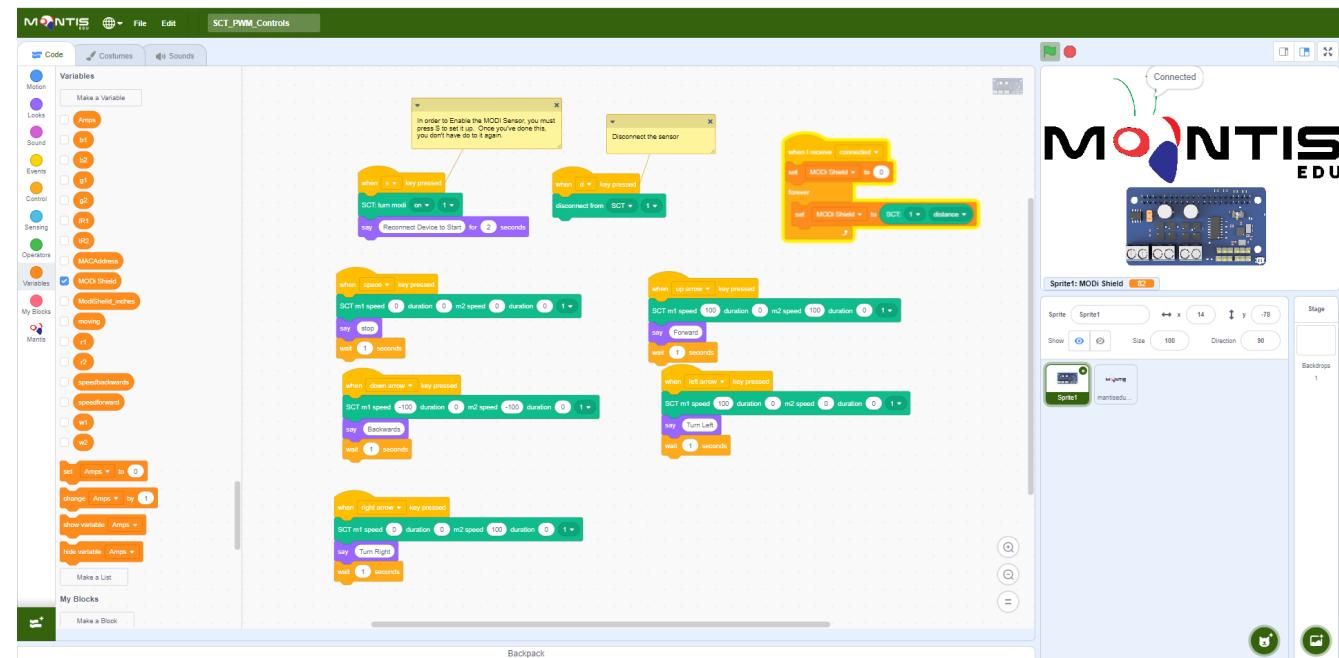
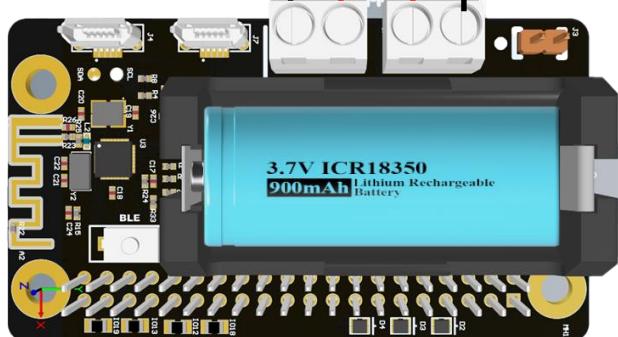
Press the d key disconnect from the sensor

#### S Key Command

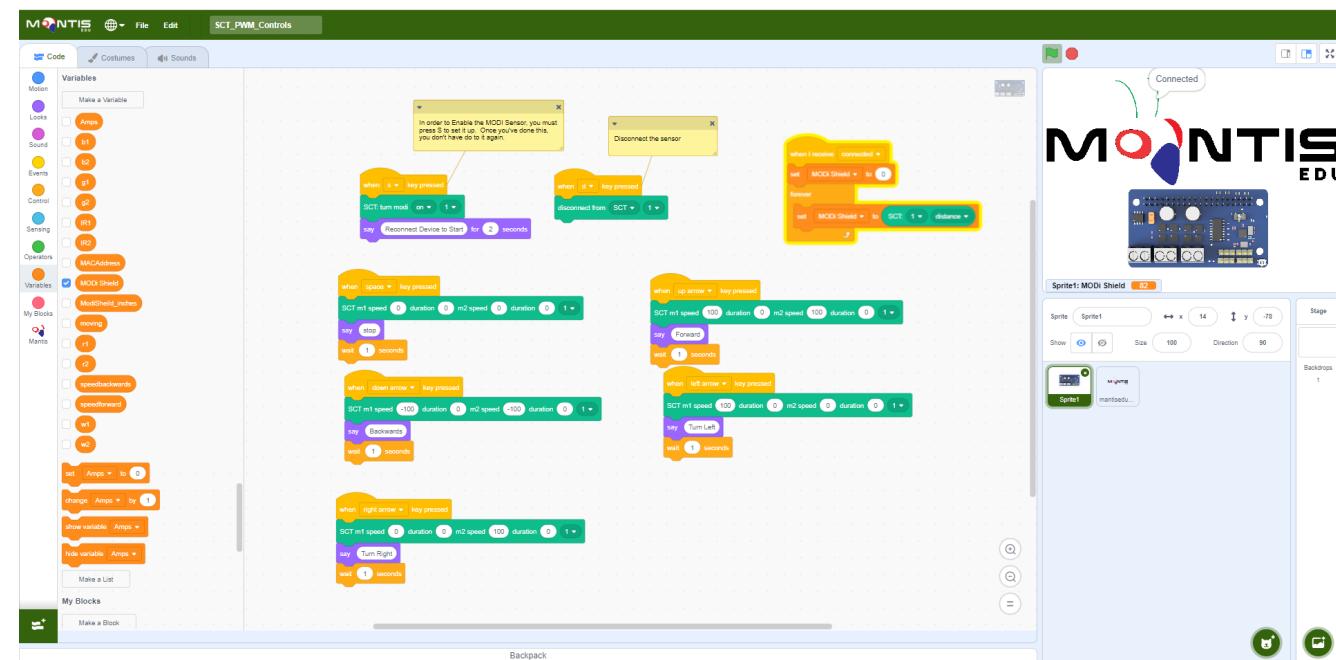
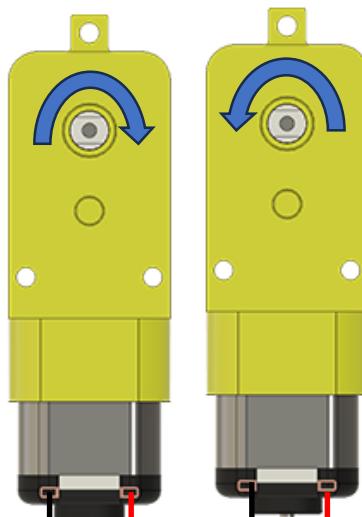
Press S key to enable the Modi sensor. Only needed once! Device will reboot after.



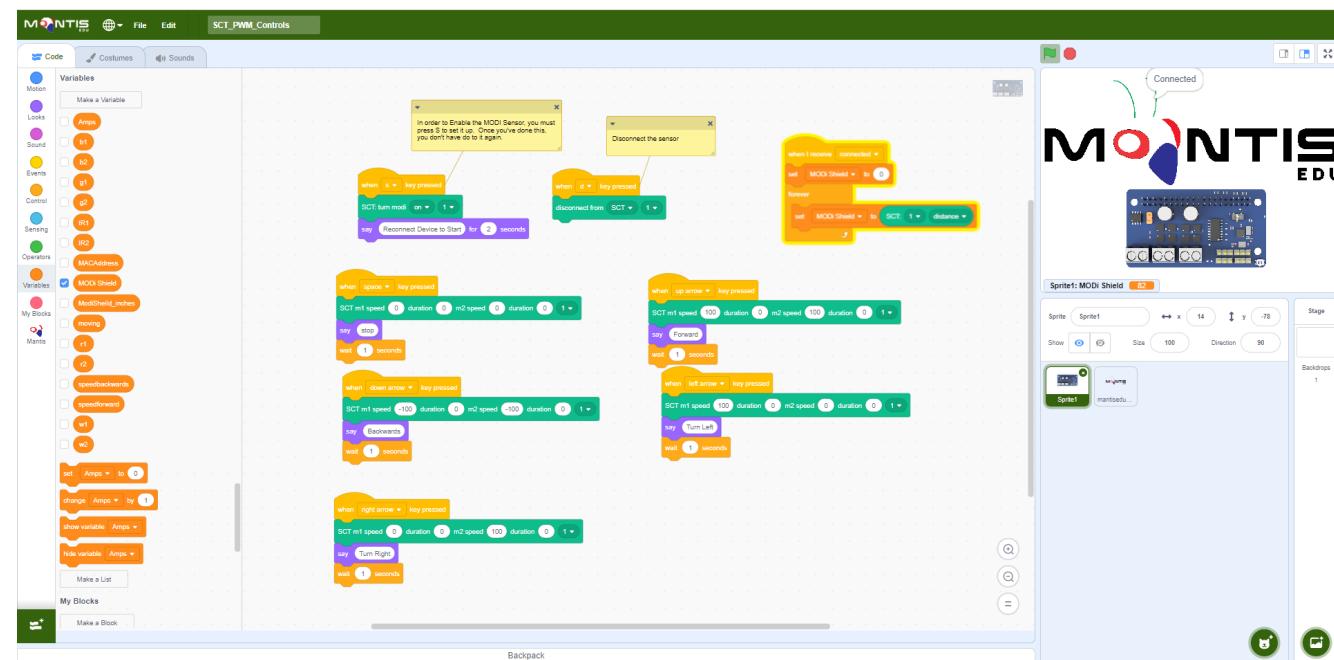
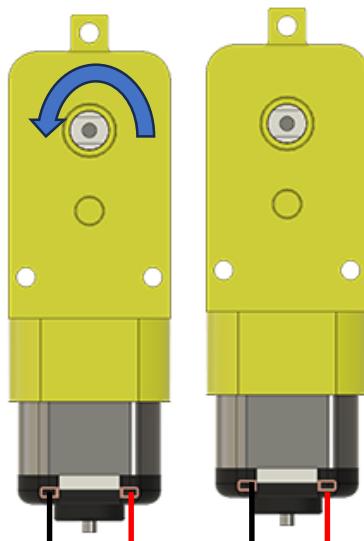
Up key turns the  
motors in the  
direction of the arrow



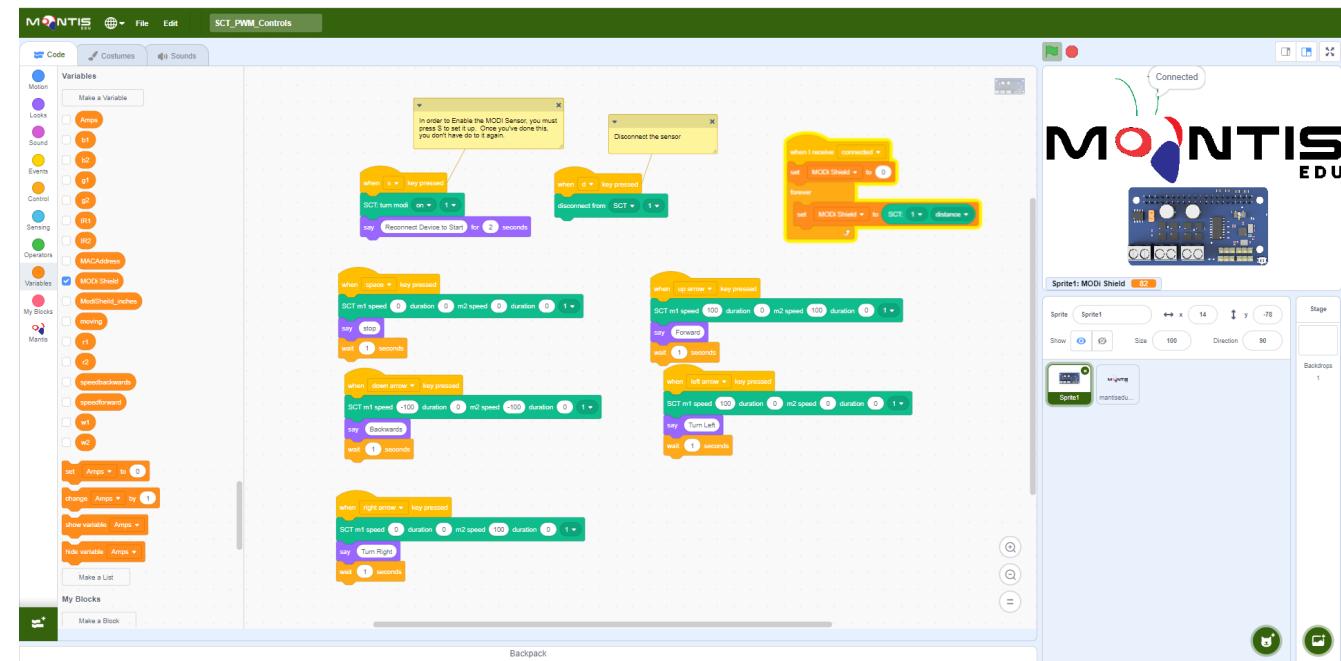
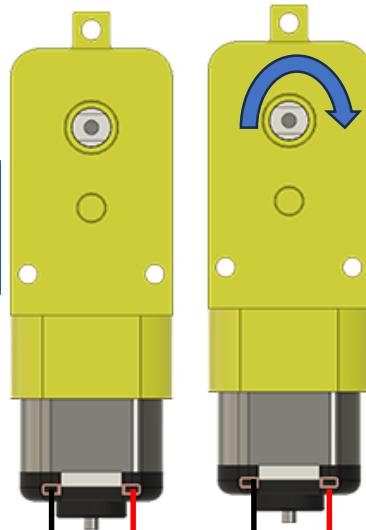
Down key turns the  
motors direction of  
the arrow



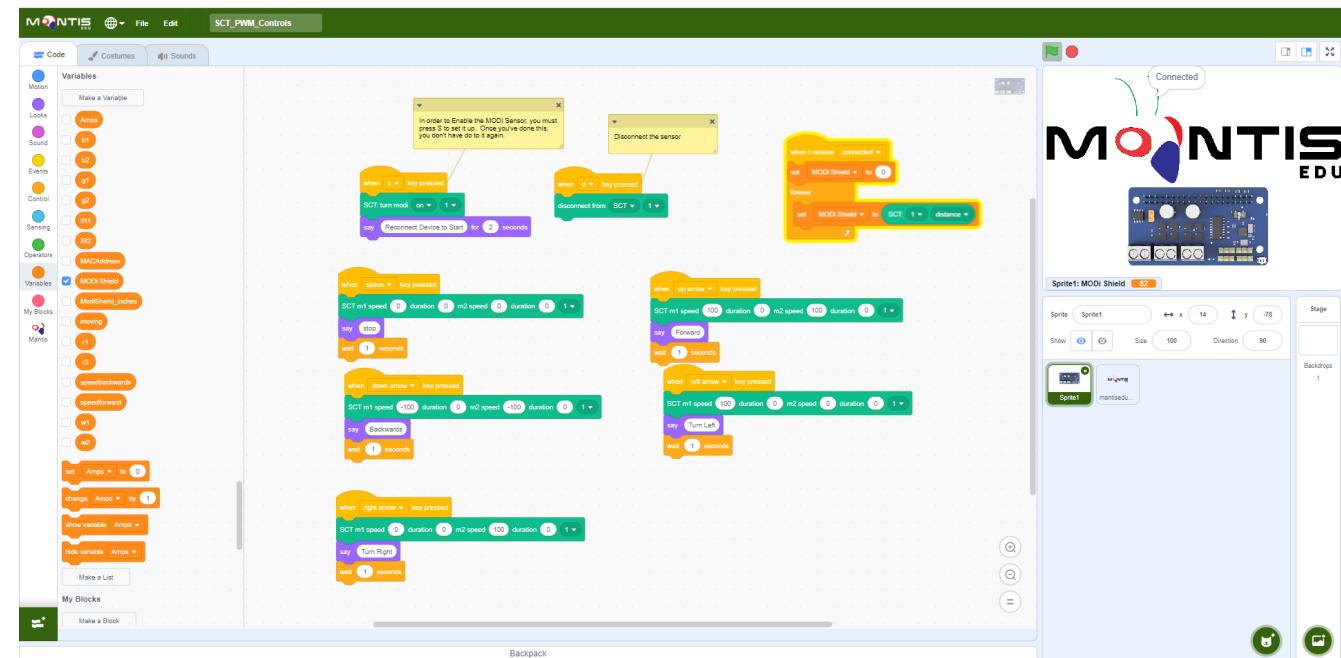
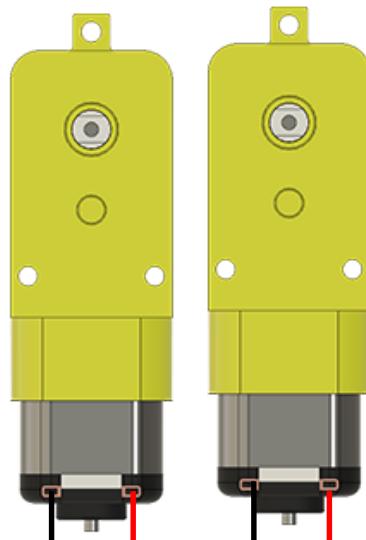
**Left arrow turns  
Motor 1 only**



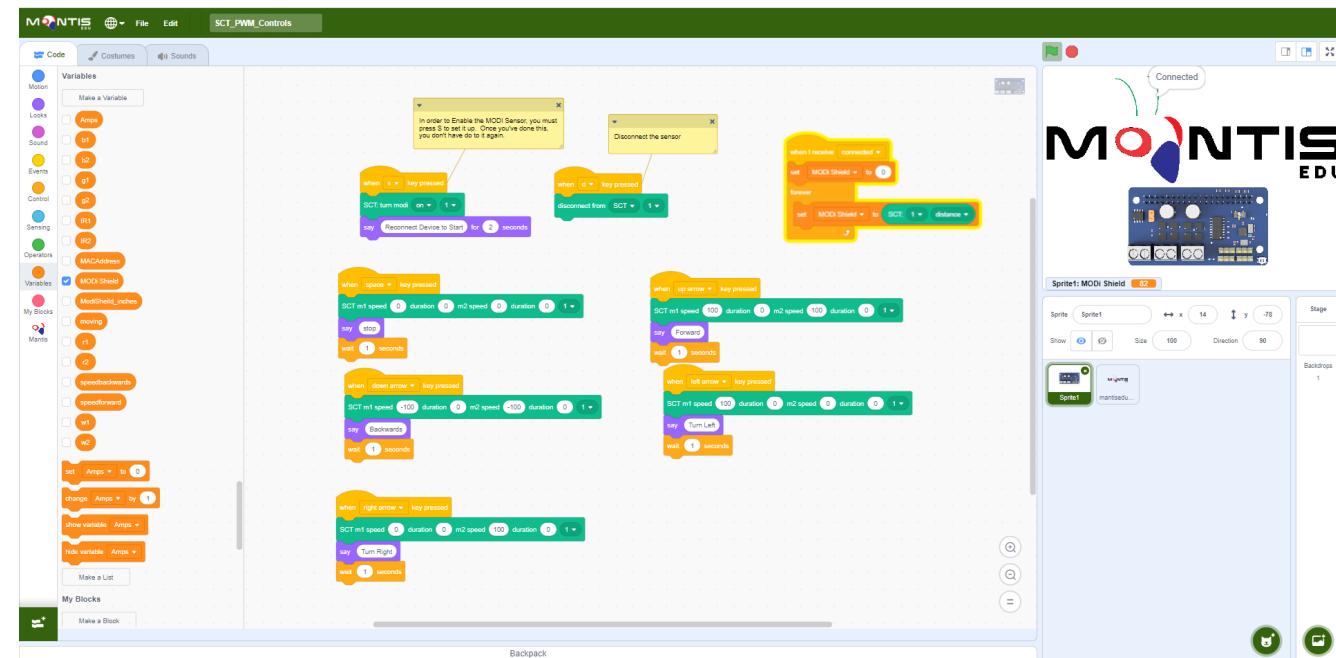
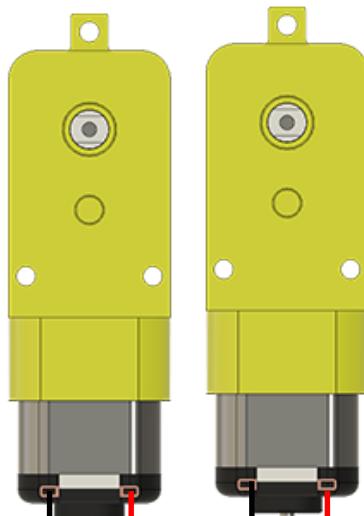
Right arrow turns  
Motor 2 only



## Space bar stop boths motors



**S key Enables the MODI and disconnects.**



## D key disconnects the Motorhat

