Activities with mBot – iPad

1. Making the mBot move!

Once you have connected your mBot to your iPad via Bluetooth you can program it very similarly using mBlockly as you would using mBlock on the PC/Mac. See "Getting Started with mBot – iPad" to connect.

STEP 1: Open the mBlockly app. Connect to the mBot through Bluetooth. Choose "Create New Project."

STEP 2: To start your code go to the "Begin" tab at the top of the menu, select the "when Go" block, and drag it into the programming area. This allows the program to run every time you hit the large "Go" button at the bottom left of the screen.

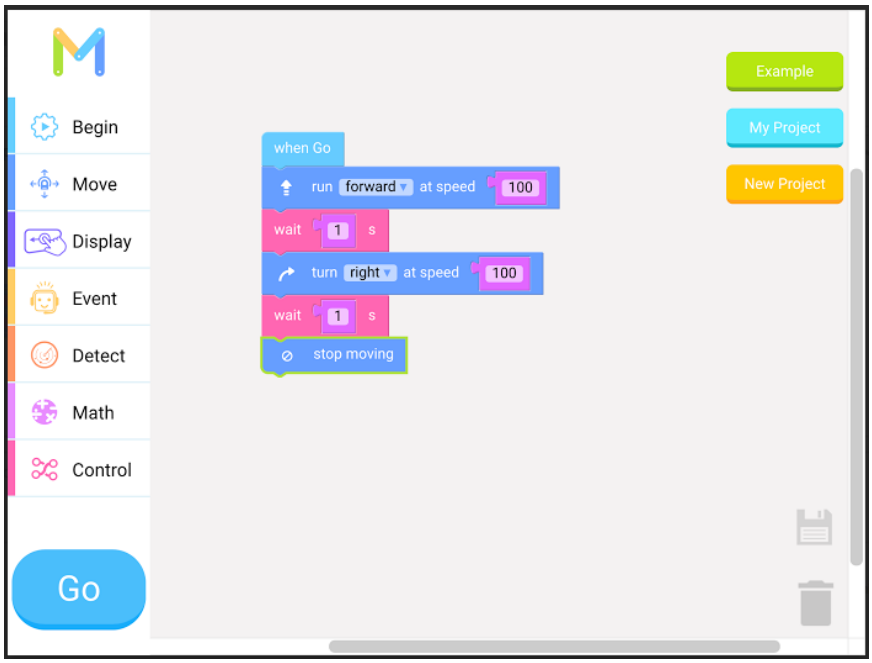
STEP 3: Under the "Move" tab select the "run forward" block and drag it into your code. Keep the settings at "forward" and 100.

STEP 4: Add a "wait" block from the "Control" tab and set to 1 second.

STEP 5: Go back to the "Move" tab and select a "turn left" block, but change it to right in the drop down menu. Keep the speed at 100.

STEP 6: After adding one more "wait" block, go back to the "Move" tab and select a "stop moving" block. This will shut off your mBot's motors.

Your final code should look like this:



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2. Making the mBot repeat! (Repeat Loop)

Code to move in a box on iPad

Here is how to program the mBot to move in a box going clockwise:

Step 1: To start your code go to the “Begin” tab at the top of the menu, select the “when Go” block, and drag it into the programming area. This allows the program to run every time you hit the large “Go” button at the bottom left of the screen.

Step 2: Under the “Control” tab select the “repeat” block and drag it into your code. Change the number of times to 4.

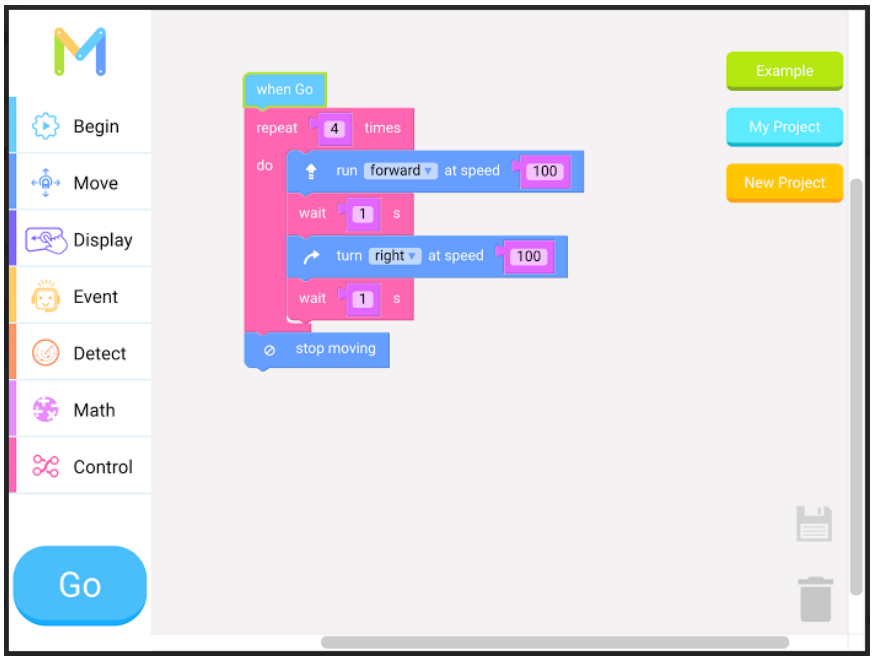
Step 3: Within the repeat loop add a “run forward” block and keep the “forward” setting and the speed at 100.

Step 4: After a “wait” block setting the time to 1 second. Go to the “Move” tab and select a “turn left” block, changing it to right in the drop down menu. Add one more “wait” block.

Step 5: Go back to the “Move” tab, select a “stop moving” block and add it to the end of the repeat loop. This will shut off your mBot’s motors.

Your final code should look like this:

3.



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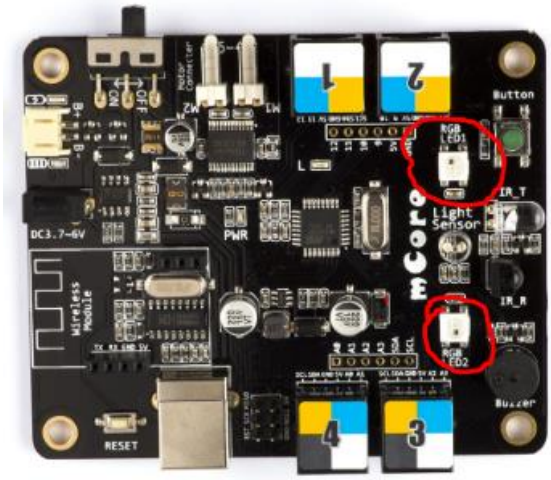
3. Light it up!

Code to shine LED red, blue and green on the iPad

Here is how to program the mBot to shine its LED lights located on the top of the mCore board:



STEP 1: To start your code go to the "Begin" tab at the top of the menu, select the "when Go" block, and drag it into the programming area. This allows the program to run every time you hit the large "Go" button at the bottom left of the screen.

STEP 2: Under the "Display" tab select the "set led on board" block and drag it into your code. Select both and keep the color as red.

STEP 3: After a "wait" block setting the time to 1 second go back to the "Display" tab and select another "set led on board" block. This time change the color to blue by clicking on the red box. Color options should appear where you can select any color and how brightly you want it to shine. Select blue at the highest brightness. Add another "wait" block.

STEP 4: Select another "set led on board" block and set it to green. Add one more "wait" block.

STEP 5: One final "set led on board" is necessary to shut the lights off. This one set to black.
This will shut off your mBot's LED lights.

Your final code should look like this:

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4. Sing, Sing, Sing!

Code to play the Star Wars theme on iPad

Once you have connected your mBot to your iPad via Bluetooth you can program it very similarly using mBlockly as you would using mBlock.

Here is how to program the mBot to sing a tune (Star Wars theme):

Step 1: To start your code go to the "Begin" tab at the top of the menu, select the "when Go" block, and drag it into the programming area. This allows the program to run every time you hit the large "Go" button at the bottom left of the screen.

Step 2: Under the "Display" tab select the "play tone on" block and drag it into your code. Drag four more.

Step 3: Under these five display blocks add a "repeat" loop. Change the number of times to 2. Within this loop place five more "play tone on" blocks. After the loop add four more "play tone on" blocks and one "stop tone" block. This will end the song.

Step 4: Now go back and select which notes you want by clicking on the default C5. A screen like this should come up:

By clicking on the notes you can change each tone. From top to bottom these are the notes to make the Star Wars theme:

D5, D5, D5, G5, D5, (within the loop) C6, B5, A5, G5, D5, (out of the loop) C6, B5, C6, A5.

Unfortunately on mBlockly you cannot control the length of each note. For more options, use the PC or Mac version of the software mBlock.

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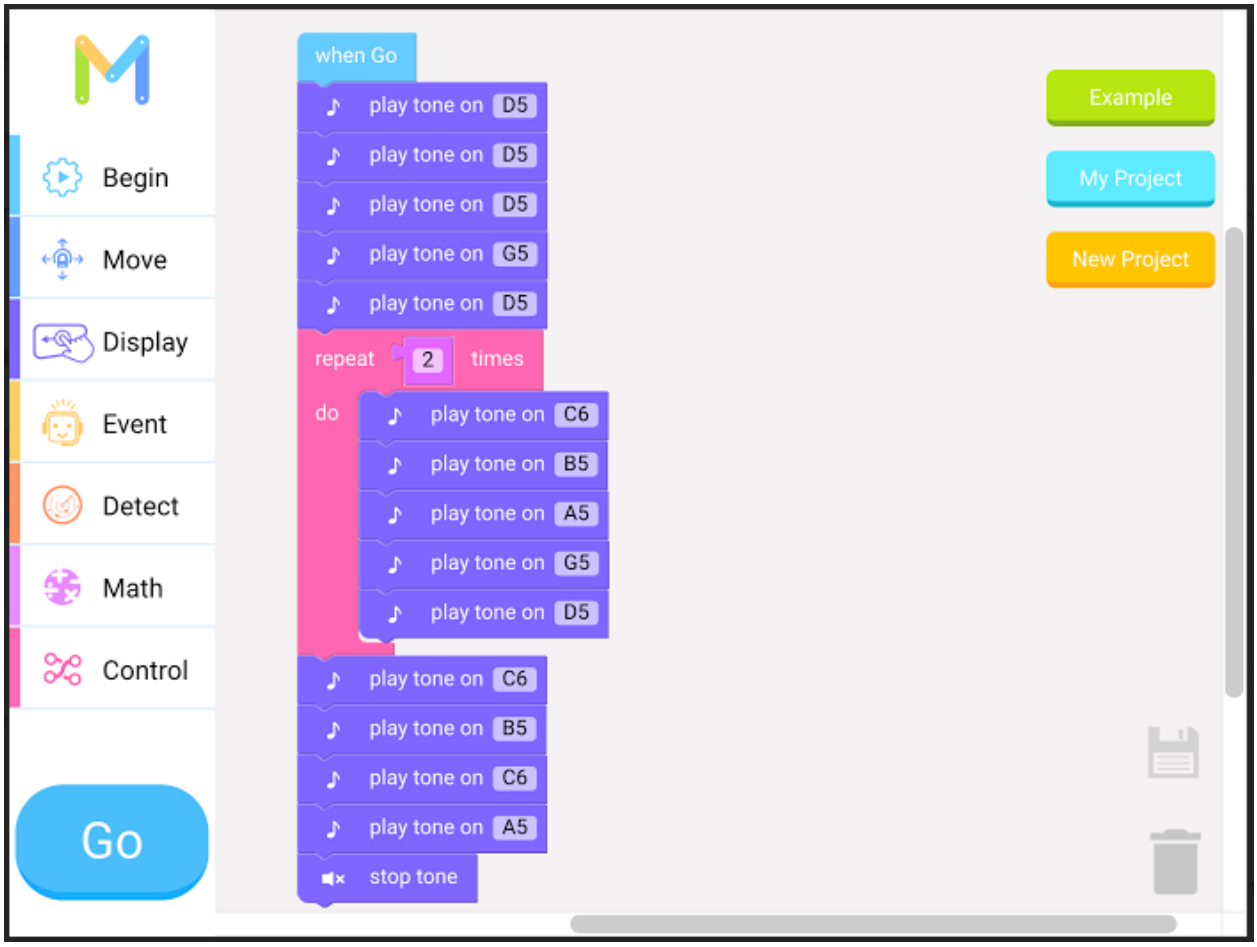
Your final code should look like this:



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5. Don't Crash!

Program using ultrasonic sensor to avoid obstacles

Once you have connected your mBot to your iPad via Bluetooth you can program it very similarly using mBlockly as you would using mBlock.

Here is how to program the mBot to avoid obstacles by using its ultrasonic sensor:

Step 1: To start your code go to the "Begin" tab at the top of the menu, select the "when Go" block, and drag it into the programming area. This allows the program to run every time you hit the large "Go" button at the bottom left of the screen.

Step 2: Under the "Control" tab select the "repeat forever" block and drag it into your code. Within the forever loop add an "if else" block.

Step 3: Within the "if" condition space, place an "obstacle detected" block from the "Event" tab.

Step 4: Within the "do" section, place a "turn left (or right)" and "run backward" block and add a "wait" block. This will turn the mBot backwards and direct it elsewhere whenever the sensors detect an obstacle.

Step 5: In the "else" section place a "run forward" block so that the mBot can move forward whenever there is nothing in his way.

Your final code should look like this: