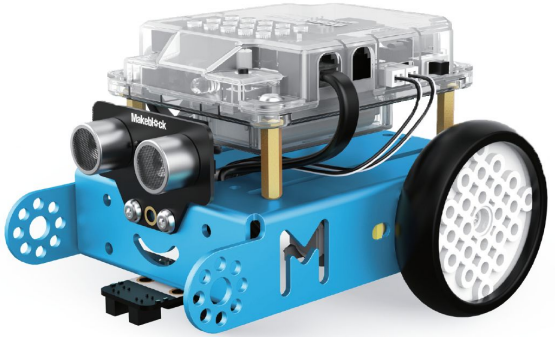
Welcome to Mission Mars

Mars Rover 1 – Part 2/3

MODULE 6

Coding mBot – Basic Moves, Lights & Sounds



Project 01. Controlling the Basic movements of a Wheeled Robot

Project is designed to cover the various aspects related to movements of mBot.

We can control:

- **Forward move.**
- **Left & Right turns.**
- **Speed of move by controlling its power.**
- **Duration of move.**

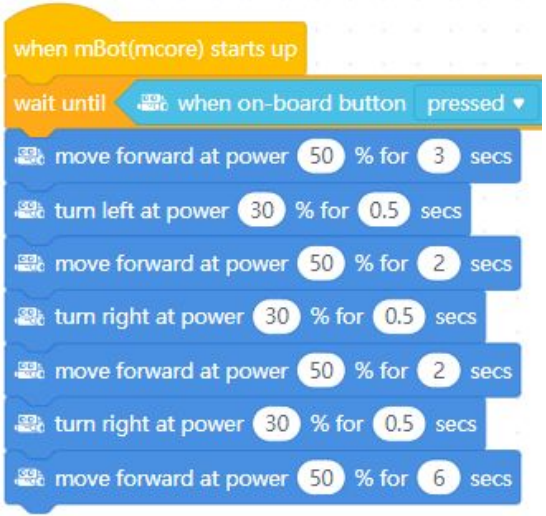
Look at the attached Code. In this:

1. Coding is done in upload mode. Statement in line 1 is displayed only in this mode.

2. Start all projects by making the statement in line 2 using sensing block (will learn more later).

2. This acts as the executive trigger for the mBot.

3. Notice the effect in case this line is not put in the code.

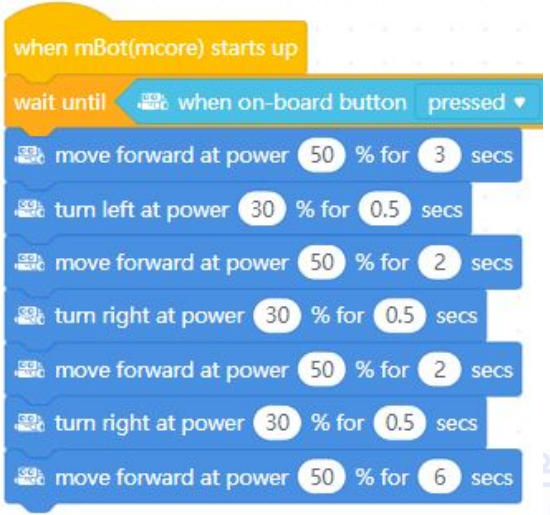


Repeat the same project by changing the Parameters & observing the result.

Do so one by one for all cases.

This will give you some good tips on how mBot moves.

These will be every useful later.

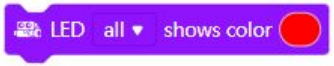


Project 02. Changing & controlling the color emitted by an LED

Aim of this project is to learn the changing of color of an LED through code. We want you to first try it yourself.

Say we want to change the color from red to purple, to green & finally to blue.

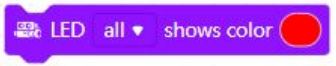
Think how it could be done.

Try using this 

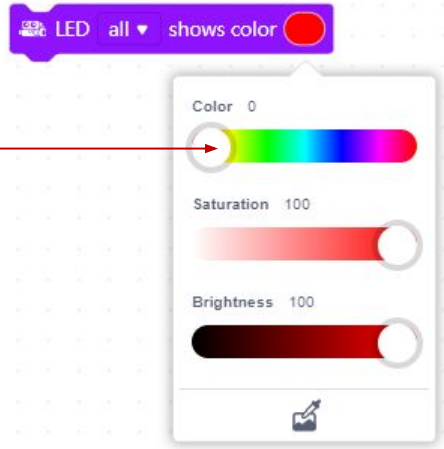
along with a suitable trigger.

Note the options in its dropdown.
Think where & when these could be used.

Yes, you are right. To change color, click on color (red).



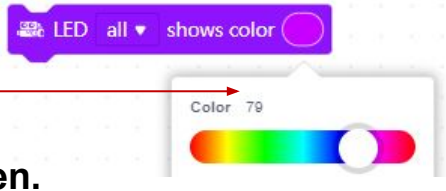
In the dropdown move the white circle to the left.



As you move left

color of roundel keeps changing.

So do numbers on top of the color bar
(changed from 0 to 79)



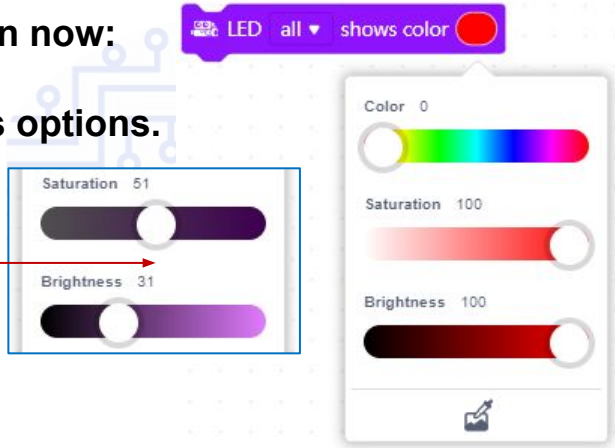
Stop at the desired color & click on the screen.
Color is selected.

Try. It is simple.

Having selected the color, You can now:

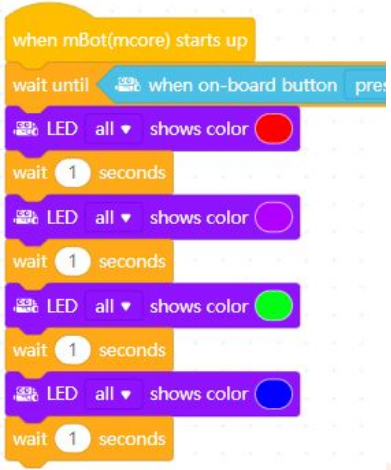
Play with Saturation & Brightness options.

Procedure is like color.
Move roundel to right.
Observe the produced effect.
Stop at the desired effect.



The final code for this is as shown here.

Note the use of wait blocks.
It is like voice bubbles in sprites.



Project 03. Making a Musical Keyboard through Code

We want mBot to play eight notes – A2, B2, C2, D2, E2, F2, G2, & C4.

Give a thought on how it could be done.

Hint 1. Look at using 

or: 

Hint 2. Since each note requires a separate trigger, these number of triggers will be available only if When space key pressed statement is used.

This statement is available only in live mode.

The Code for this project is shown here.

Now add more keys with different notes by selecting them from the dropdown.

Play the keys like a piano & see the effect.

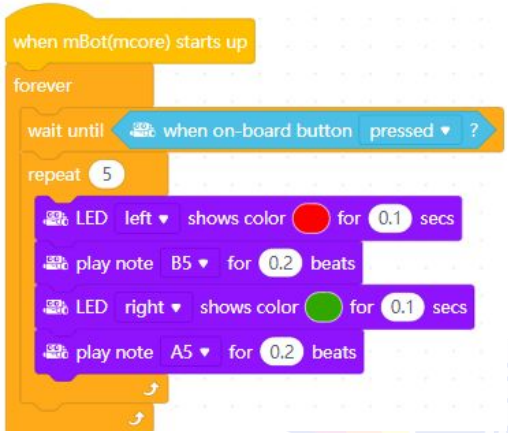
Project 04. Making a Simple light & sound show through Code.

This is a mix of project 02 & 03 above.

Run the code and see for yourself.

Now think of how you can add more fun into this project like:

- **Making more & better music.**
- **Adding more colors.**
- **Changing durations etc.**



Project 69. Controlling Actions Based on Light Intensity

In this project, mBot changes the musical notes it plays based on the intensity falling on it.

Kindly see the video to understand.

Try it yourself.

Experiment more by adding more musical notes.