Presentation Content

1. Hands-On!
2. How to download?
   1. PC
   2. Mobile APK/IOS
   3. Chrome Browser or other browsers
3. Explain each block from the built-in blocks.
   1. Built-in blocks
      1. Blocks vs Code
         1. Advantage
         2. Disadvantage
         3. But why blocks help us?
         4. Blocks as Visual Aid
         5. Using Makeblock to inspire others to like computers
      2. Doer Blocks and Value Holder Blocks
         1. Doer Blocks (aka Functions)
            1. It does something
            2. It can use values from you (user input)
            3. It can use values from value holders
            4. It can give a value to a variable and to another function (return)
            5. Other complex function concepts

Recursion (a function calling itself)

Function as a function argument

Functions giving functions

* + - 1. Value Holder Blocks (aka Variables)
         1. It still does something: It only hold values
         2. Why mBot need variables

For the mBot to remember information from his surroundings

For the mBot to manipulate data or information

It will use the information for deciding his actions

Example: If true then do that, if false, do this instead

To do calculations (algebra)

The importance of variables in algebra

* + 1. Types of Variables
       1. True or False (Boolean)
       2. Numbers (Integers, Float, etc)
       3. Strings (words, collection of characters)
          1. Characters: ASCII code
          2. Unicode: can represent 143,000 characters

These are the commonly used types of variables in MakeBlock.

* + 1. User Input:
       1. String input
          1. Holes in the blocks
  1. Extension blocks
  2. Extension blocks: More Options
     1. Specifying each of the mBot Ranger’s motor’s power and direction

1. Programs
   1. Line Tracing
      1. When mRanger starts
         1. It will do forever:
            1. Check if the light sensor, senses

Black black

On track

forward

Black white

Partially on track

Turn left

White black

Partially on track

Turn right

White white

Lost from track

Backward

* 1. Sumo Bot
     1. When mRanger starts
        1. It will do forever:
           1. Go forward
           2. Check sonar sensor

If an object is:

Not sensed

Distance > 100%

Change the speed to 40%

Sensed but not that close

Distance < 50%

Change the speed to 60%

Sensed, and it is close

Distance < 10%

Change the speed to 80%

* + - * 1. Check light sensor

If the floor is black

Go backward

Turn a certain degree (say 60 degrees)

Motor 1 backward

Motor 2 forward

Wait for a certain time (0.5 seconds)

* + - * 1. Change lights color base on action done

Red – an object is close

Orange – Sensed but not close

Green – Not sensed

White – The floor is black

Pink – Going backward (after knowing: the floor is black)

Blue – Turning (after going backward)

1. Arduino C
   1. C Language
   2. Conversion of MBlock’s blocks into codes
2. Sprites
   1. Using mBlock without a physical robot
   2. Line tracing using sprites