Program Details

Program Name : MBot for Beginners
Program Code : TRA0009
Duration : 1.5 hrs per Lesson (approx. 3 months to complete the course)
Learning Material : mBot (exclusive)

Program Outline

Lesson 1: Introduction of mBot hardware and its application
Lesson 2: MBot programming development environment and Scratch programming
Lesson 3: Motor control
Lesson 4: Light sensor and buzzer
Lesson 5: Ultrasonic sensor and its application
Lesson 6: Programming process control
Lesson 7: Introduction of For Loop
Lesson 8: Introduction of If… else
Lesson 9: Introduction of variables
Lesson 10: Data and computations
Lesson 11: Controlling mBot with smart devices and the line follower program
Lesson 12: Custom Blocks (functions) and obstacle avoidance program

Learning Outcomes

At the end of this course, students will be able to:

1. Complete the assembly of his/her first robot and ensure that the components are securely mounted.
2. Identify the name of the parts inside the kits and understand how to use it.
3. Use the basic tools and understand the dimensions of all the fastening parts.
4. Understand programming process and to write the first mBlock program.
5. Locate and identify various functionalities in the mBlock software interface.
6. Use various ways to establish connection between the mBot and computer.
7. Can creatively complete the construction of basic functional structure as needed.
8. Identify the name of different sensors and their applications.
9. Understand how the motor receives data from other sources which in turn, become the source to its speed.
10. Understand the arrays of lists and the use of subprograms in the mBlock development environment.
11. Understand when to use loop and switch, as well as their uses.
12. Understand the definition and principle of the input of mBot ultrasonic sensor and the various ways of using mBot ultrasonic sensor.
13. Understand the definition and principle of the input of an mBot's of a line-follower sensor and its application.
14. Understand the principle of the transmitter and receiver ends of the mBot IR sensor and its applications.
15. Understand the principle of the transmitter and receiver of the mBot's light sensor and its applications.
16. Understand the functions and principles of the mBot's button, buzzer, LED lights and reset button.
17. Understand the basic concept and application of the mBot Bluetooth communications module.