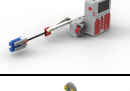
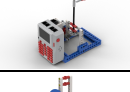
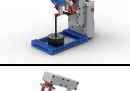
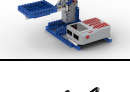
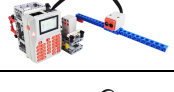


Lesson contents of MPBOT S1

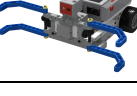
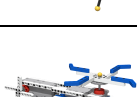
Level		Main Knowledge	Lessons	Duration	Programming
Level 1	Basic	Common mechanical structures, single-motor control, basic programming	16	60-90mins/lesson	Microbrain
Level 2	Intermediate	Sensor and multi-motor control, advanced programming	16	60-90mins/lesson	Microbrain
Level 3	Advanced	Multi-sensor collaborative programming, advanced modes	16	60-90mins/lesson	Microbrain
Level 4	High	Computer programming applications	16	90-120mins/lesson	AICODE (PC)

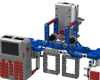
Lesson contents of MPBOT S1

No.	Level	Lesson name	Knowledge point	Project	Core parts	Class Duration	Programming Platform
1	Basic -Level 1	Shaking and wobbling	* Gravity * Stability of a triangular structure * Oscillating mechanism * Basic control of a motor		Motor*1	60-90 mins	Microbrain
2	Basic -Level 1	A magical spin	* Paper cutting * Centrifugal force phenomenon * Multi-stage acceleration mechanism * Repetitive motion control		Motor*1	60-90 mins	Microbrain
3	Basic -Level 1	Going against the current	* Upstream and downstream motion; * Pinary gear driving a large gear * Alternating forward and backward motion * Motor forward and reverse rotation control		Motor*1	60-90 mins	Microbrain
4	Basic -Level 1	Vast ocean	* Principle of buoyancy * Suspension experiment * Cam drive mechanism * Timing motion programming		Motor*1	60-90 mins	Microbrain
5	Basic -Level 1	Busy farming season	* Gear transmission * Bevel gear transmission * Crank-connecting rod mechanism * Storage compartment structure construction		Motor*1	60-90 mins	Microbrain
6	Basic -Level 1	Top secret file	* Encryption Method * Communication Method * Lock Mechanical Structure * Basic Motion Control		Motor*1	60-90 mins	Microbrain
7	Basic -Level 1	Machinery factory	* Hydraulic action * Robotic arm construction * Worm gear drive * Motor forward and reverse rotation control		Motor*1	60-90 mins	Microbrain
8	Basic -Level 1	Delicious BBQ	* Stable frame construction * Crank and connecting rod mechanism * Rack and pinion transmission * Conversion between rotary and linear motion		Motor*1	60-90 mins	Microbrain
9	Basic -Level 1	Crossing mountains and valleys	* Extra-long vehicle construction * Fruit-based power generation experiment * Problem analysis * Basic operation practice		Motor*1	60-90 mins	Microbrain
10	Basic -Level 1	Slam Dunk	* Shooting Mechanism * Crank and Connecting Rod Application * Button Programming * Cycle Instruction Control		Motor*1	60-90 mins	Microbrain
11	Basic -Level 1	Flooding	* The Hazards of Water * Separation Experiment in Water * Connecting Rod and Belt Drives * Sequential Programming		Motor*1	60-90 mins	Microbrain
12	Basic -Level 1	Hesitant and awkward	* Paper tension * Ratchet mechanism * Button control * Motion time programming		Motor*1	60-90 mins	Microbrain
13	Basic -Level 1	Pulling back from the brink	* Braking and Friction * Factors Affecting Friction * Dual-Wheel Reverse Transmission * Infinite Loop Programming		Motor*1	60-90 mins	Microbrain

14	Basic -Level 1	Vast universe	* Earth's relationship with celestial bodies * Three-sphere motion model * Gear composite transmission * <u>Sun-Moon-Earth system programming</u>		Motor*1	60-90 mins	Microbrain
15	Basic -Level 1	Master of balance	* Self-balancing principle * Center for gravity adjustment * Linkage mechanism * Repetitive execution control		Motor*1	60-90 mins	Microbrain
16	Basic -Level 1	Swinging wildly	* Amusement park ride structure * Bevel gear transmission * Multiple types of loops * <u>Nested logic programming</u>		Motor*1	60-90 mins	Microbrain
17	Intermediate -Level 2	Rising Surge	* Telescopic Mechanism Principle * Parallelogram Instability * Rack and Pinion Drive * Telescopic Programming		Motor*1 Full color light*1	60-90 mins	Microbrain
18	Intermediate -Level 2	Fitness Guru	* Fitness center * Cam mechanism * Cycle programming * Sound intensity sensor control		Motor*1 Sound sensor*1	60-90 mins	Microbrain
19	Intermediate -Level 2	Radiant Light	* Causes of rainbows * Light refraction * Execution sequence control * <u>Programming of colored lights on/off</u>		Motor*1 Full color light*1	60-90 mins	Microbrain
20	Intermediate -Level 2	Oral Health	* Rigid human body structure * Oral protection * Crank-slider mechanism * Buzzer control		Motor*1 Buzzer*1 (in controller)	60-90 mins	Microbrain
21	Intermediate -Level 2	The Sound of Music	* Sound generation principle * Cam structure * Continuous motor movement * Buzzer music programming		Motor*1 Color sensor*1	60-90 mins	Microbrain
22	Intermediate -Level 2	Time Management	* Time perception * Time measurement * Coaxial drive * Repetitive execution control		Motor*1	60-90 mins	Microbrain
23	Intermediate -Level 2	Delicious Food	* Salt preparation * Six essential nutrients * Crank and connecting rod * Dual motor control		Motor*2	60-90 mins	Microbrain
24	Intermediate -Level 2	Please pay attention to reversing	* Car Drive * Reversing Assistant * Collaborative Application of Motors and Servo		Infrared sensor*1 Motor*2 Servo motor*1	60-90 mins	Microbrain
25	Intermediate -Level 2	Please stop and swipe your card	* China's Arteries - Highways * Toll Collectors * Applications of Infrared Sensors in Identification		Infrared sensor*1 Motor*1 Servo motor*1	60-90 mins	Microbrain
26	Intermediate -Level 2	Intelligent induction trash can	* Coexisting with the Planet: Protecting Our Home * Garbage Collectors * Principles of Contactless Sensing		Infrared sensor*1 Servo motor*1	60-90 mins	Microbrain
27	Intermediate -Level 2	Deep Sea Exploration	* Earth's Oceans * Divers * Motors and Servo		Infrared sensor*1 Motor*1 Servo motor*1	60-90 mins	Microbrain

28	Intermediate -Level 2	Gramophone	* The Evolution of Music Recording Devices * Edison's Invention - the Phonograph * Collaborative Application of Infrared and Buzzers		Infrared sensor*1 Motor*1	60-90 mins	Microbrain
29	Intermediate -Level 2	Toddlers	* Olympic Knowledge * Time, Speed, Distance * Parallelogram Mechanism * Sensor Start/Stop Control		Motor*1 Infrared sensor*1	60-90 mins	Microbrain
30	Intermediate -Level 2	Convenience Measures	* Respect for the elderly and care for the young - common sense * Public facilities * Two-wheel drive principle * Route planning and design		Motor*2	60-90 mins	Microbrain
31	Intermediate -Level 2	Cleaning Experts	* Distance measurement methods * Ultrasonic principle * Belt drive * Programming logic implementation		Motor*2 Infrared sensor*1	60-90 mins	Microbrain
32	Intermediate -Level 2	Source of Life	* Understanding the Source of Life * Animal Drinking Model * Secondary Acceleration * Dual Motor Control		Motor*2	60-90 mins	Microbrain
33	Advanced - Level 3	Easy Dog Walking	* Catching up problem * Time, speed, distance * Gear acceleration * Following programming		Motor*2 Infrared sensor*1	60-90 mins	Microbrain
34	Advanced - Level 3	Recording Sound	* How to record sound * Recording engineer * Use of recording module		Full color light*1 Motor*2	60-90 mins	Microbrain
35	Advanced - Level 3	Precision Golf	* Golf: A Stylish and Elegant Sport * Golf Membership * Collaborative Application of Servo, Infrared, and Buzzer		Infrared sensor*1 Servo motor*1	60-90 mins	Microbrain
36	Advanced - Level 3	Orderly Traffic	* Understand traffic lights * Traffic commander * Synergistic application of colored lights and motors		Full color light*1 Servo motor*1 Open loop motor*1	60-90 mins	Microbrain
37	Advanced - Level 3	Simulating the gripper of a robot	* Accessible Facilities in Cities * Technology Empowers Rehabilitation Therapists * Infrared Trigger and Perpetual Loop		Infrared sensor*1 Servo motor*1	60-90 mins	Microbrain
38	Advanced - Level 3	Escape from the flipping maze	* Mapping a Maze Escape * Architectural Designer * Collaborative Application of Dual Sensors and Motors		Infrared sensor*1 Sound sensor*1 Servo motor*1	60-90 mins	Microbrain
39	Advanced - Level 3	Bionic Spider	* Application of animal bionic technology * Animal keepers * Gear-driven linkage * Coordinated motion control of open-loop motors and infrared recognition		Infrared sensor*1 Full color light*2 Open loop motor*1	60-90 mins	Microbrain
40	Advanced - Level 3	Violinist	* The charm of music * Violinist * Principles of simple turbines		Open loop motor*1	60-90 mins	Microbrain

41	Advanced - Level 3	Self-Protection	* Animal protection behavior * Camouflage * Rack and pinion transmission * Logical judgment and control		Motor*2 Infrared sensor*1	60-90 mins	Microbrain
42	Advanced - Level 3	Fully Dissolved	* Dissolution phenomenon * Influence of stirring * Bevel gear transmission * Delay program design		Motor*2 Full color light*1 Infrared sensor*1	60-90 mins	Microbrain
43	Advanced - Level 3	Smart Tissue Boxes	* Epidemic prevention and control * Worm gear transmission * Bevel gear transmission * Logical judgment and control		Motor*2 Full color light*1 Infrared sensor*1	60-90 mins	Microbrain
44	Advanced - Level 3	Beast King Kong	* Animal hazard detection * Worm gear transmission * Bevel gear transmission * Sensor-based judgment and control		Motor*2 Infrared sensor*1	60-90 mins	Microbrain
45	Advanced - Level 3	Elevator	* Transmission systems in everyday life * Elevator installers * Coordinated use of open-loop motors and roller skates, as well as infrared obstacle avoidance		Infrared sensor*1 Open loop motor*1	60-90 mins	Microbrain
46	Advanced - Level 3	Fitness elliptical machine	* Elliptical Machine * Fitness instructor * Application and Cycle Programming of Open-loop Motor		Full color light*1 Open loop motor*1	60-90 mins	Microbrain
47	Advanced - Level 3	Path Planning	* Satellite positioning and GPS navigation; * Navigation engineer * Collaborative applications of intersection line following, time-based line following, and intersection turning.		Integrated 5-grayscale sensor*1 Infrared sensor*1 Motor*2 Servo motor*1	60-90 mins	Microbrain
48	Advanced - Level 3	Express Delivery to My Home	* Huge Internet of Things * Courier * Precise control of servo motor angel and line patrol combined application		Integrated 5-grayscale sensor*1 Infrared sensor*1 Motor*2	60-90 mins	Microbrain
49	High - Level 4	Troop carrier	* Types of Motor Vehicles; * Rotation of Ordinary Electric Motors; * Power Transmission		Motor*1	90-120 mins	AICODE
50	High - Level 4	Turtle	* Animal Self-Defense Methods; * Modern Military Defense Methods; * Rotation of Ordinary Electric Motors; * Gear Transmission		Motor*2	90-120 mins	AICODE
51	High - Level 4	Transport helicopter	* Bamboo Dragonfly; * Transport Helicopter; * Two Points Fixed in a Straight Line; * Coordination of Dual Motors and Sensors		Motor*2 Infrared sensor*1	90-120 mins	AICODE
52	High - Level 4	Military dump truck	* Dump Trucks; * Historical Achievements of Military Dump Trucks; * Servo Motor Control		Motor*2 Servo motor*1	90-120 mins	AICODE

53	High - Level 4	Transmission military vehicle	* Classification of Military Vehicles; * Automobile Gears and Transmission; * Number of Gear Teeth and Transmission Ratio; * Co-programming of Motors and Lights		Motor*1 Full color light*2	90-120 mins	AICODE
54	High - Level 4	Military dog	* Different Types of Dogs; * Military (Police) Dogs; * Use of Servo Motors and Co-control of Motors and Colored Lights		Motor*2 Servo motor*1 Full color light*1	90-120 mins	AICODE
55	High - Level 4	Transport robot	* Different Uses of Robots; * Different Movement Methods of Robots; * Two-Wheel Drive; * Dual Motor Coordination and Lighting Display		Motor*2 Full color light*2	90-120 mins	AICODE
56	High - Level 4	Diver	* Navy; * Breaststroke Diving; * Instability of Parallelograms; * Infrared Obstacle Avoidance and Coordination of Open-Loop and Closed-Loop Motors		Motor*2 Open-loop motor*1 Infrared sensor*1	90-120 mins	AICODE
57	High - Level 4	Sound generator	* Electricity generation; * Energy conversion; * Sound intensity (decibels); * Coordinated movement of sound intensity sensors, motors, and colored lights;		Open-loop motor*1 Full color light*1 Sound sensor*1	90-120 mins	AICODE
58	High - Level 4	Cruiser	* Ships; * Warships; * Coordinated use of infrared sensors, motors, sound intensity sensors, and colored lights		Open-loop motor*1 Full color light*1 Infrared sensor*1 Sound sensor*1	90-120 mins	AICODE
59	High - Level 4	Line patrol vehicle	* Thirty-six Stratagems; * Route design; * Grayscale line-following programming		Motor*2 Full color light*2 Infrared sensor*1 Integrated 5-grayscale sensor*1	90-120 mins	AICODE
60	High - Level 4	Radar	* The Eye of War; * Military radar; * Straight bevel gear transmission; * Coordinated application of motors, servos, and infrared		Motor*1 Servo motor*1 Infrared sensor*1	90-120 mins	AICODE
61	High - Level 4	Smart street light	* The invention of the light bulb; * Intelligent streetlights; * Light sensing principle; * Light sensing programming logic judgment		Full color light*2 Light sensor*1	90-120 mins	AICODE
62	High - Level 4	Smart lamp	* Energy-saving lamps; * Stairwell lighting principle; * Logic nesting; * Coordinated application of sound intensity, light sensing, and colored lights		Full color light*2 Light sensor*1 Sound sensor*1	90-120 mins	AICODE
63	High - Level 4	Opening and closing door	* Various types of doors; * Automatic door principle; * Gear and rack; * Use of magnetic sensors, infrared obstacle avoidance sensors, and motors		Motor*1 Infrared sensor*1 Magnetic sensor*1	90-120 mins	AICODE
64	High - Level 4	Color recognition machine	* Color; * Why can the human eye perceive color?; * Color sensors; * Coordinated programming of motors and color sensors		Motor*1 Full color light*2 Infrared sensor*1 Color sensor*1	90-120 mins	AICODE