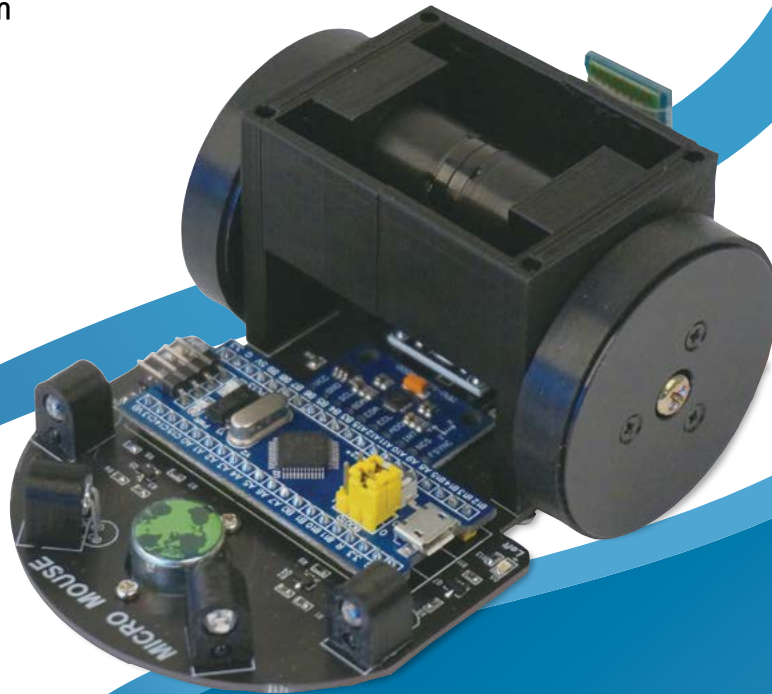




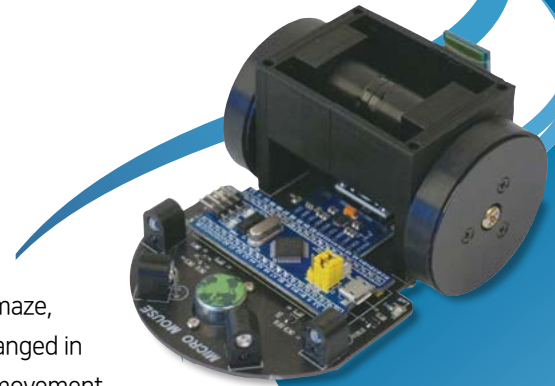
Micro Mouse

- Quick and accurate maze navigation
 - Micro DC Motor
 - Rotary Encoder
 - Gyro Sensor
 - Infrared Sensor
 - Bluetooth Equipped
- Arrive at the target point with precise navigation
- The fastest way to get to the destination

Micro Mouse is a maze search robot that has compactly gathered a lot of technologies such as a microprocessor, a robust mechanism, sensors recognizing the maze, a motor control technique, a maze search and a shortest path derivation algorithm.

MicroMouse

Micro Mouse game is that a stand-alone robot searches for unknown mazes and competes the shortest transit time from the starting point to the goal point. Micro Mouse has all the features you need to navigate the maze, and drives the unknown maze with its own without help. The two motors arranged in the center of the body as the driveline are controlled independently for free movement in the labyrinth. The rotary encoder, the gyro sensor and the infrared sensor are equipped as the sensor. The rotary encoder is connected to the wheel and measures the amount of wheel rotation. The gyro sensor measures the body's rotational speed. This measurement information is used to control the feedback to the motor to achieve straight forward or rotational motion. The infrared sensor consists of a LED for light emission and a phototransistor for light receiving. The LED emits highly directional infrared rays to the maze wall and the phototransistor measures the reflected light. This product provides the program source for you to learn these techniques. Through this, anyone can enjoy the micro mouse game programmed by own.



Product Features

1. Configuration of Robot

- Equipped 2 micro DC motors as drive system and Encoder/gyro sensor/and 4 infrared sensors as sensors.
- 4 infrared sensors are used, 2 for front detection and 1 for left and right detection.
- Bluetooth allows you to view debugging information and driving information through communication with a PC.

2. The Search Drive

In search driving, it investigates the unknown labyrinth structure by combining 1 section straight ahead and 90 degree turn.

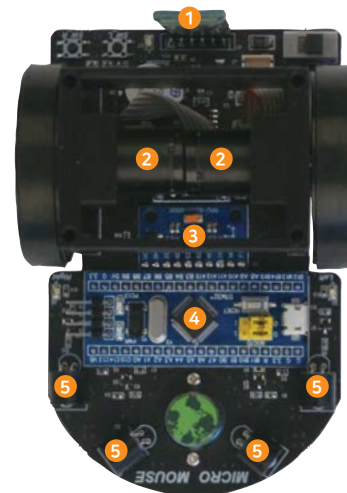
3. The Shortest Drive

In the shortest drive, it runs the known path quickly by combining actions such as straightening several compartments, sloping straight ahead, turning 45/90/135/180 degrees.

Hardware Specifications

Category	Specifications
Motor	FAULHABER 1524E006SR Encoder16 CPR
CPU	STM32F103C8
ROM	64 Kbytes Flash Memory
RAM	20 Kbytes SRAM
MOTOR CONTROL	DRV 8833 Board
Gyro Sensor	MPU-6500 Board
Infrared Sensor (Light Emitting)	SFH-4550
Infrared Sensor (Light Receiving)	SFH-309FA
Bluetooth	HC-05 Bluetooth Board
Speaker	SMT-0540-S-R
Battery	Lithium Polymer 250mAh - 7.4v
Size	75 x 110 x 48 (mm)

Configuration and Name of Each Part



- 1 Bluetooth
- 2 Encoder + DC Motor
- 3 Gyro Sensor
- 4 CPU
- 5 Infrared Sensor

Software and Development Tool

Category	Specifications	Remarks
Programmer	ST-Link V2	Provided
Compiler	EmBitz	Provided
Firmware Source	C Language	Provided

Firmware Source

File Name	Function
Calibration.c	Tuning infrared sensor and gyro sensor
Control.c	PID control
Detection.c	Calculate the distance to the wall using infrared sensor
Encoder.c	Calculate mileage distance by counting motor encoder value
Motor.c	Motor control
Move.c	Forward, backward, rotation
Search.c	Shortest path algorithm
Solve.c	Manage route to goal
Speed.c	Speed control for Micro Mouse