Treasure Hunting and Tracking Robot
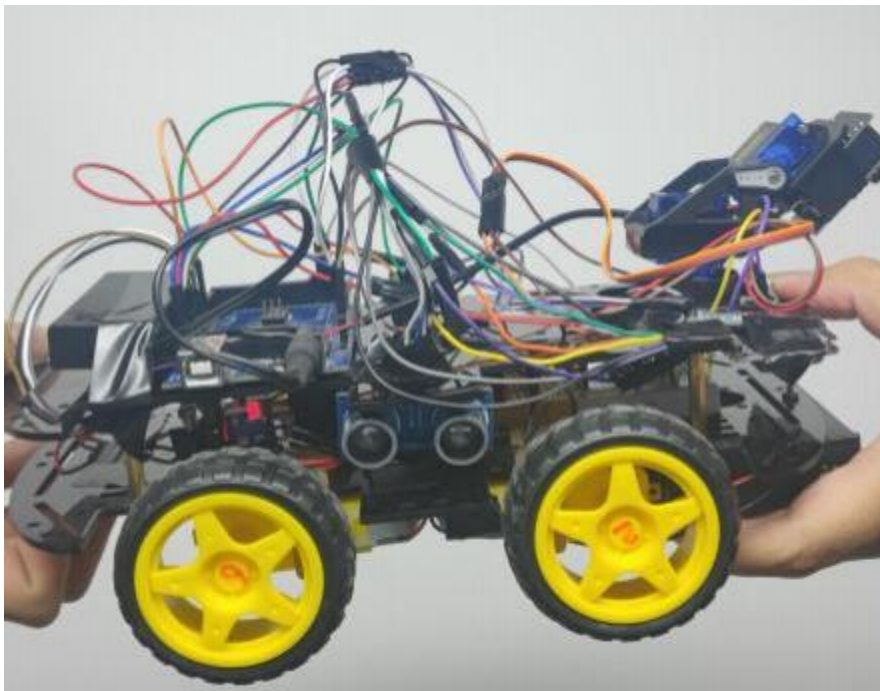
We sincerely thank you for your purchase of this product

① Please read the contents of this manual carefully before use and use in the correct way

② This product is still in testing .

③ Please read the safety precautions carefully before use and refer to the warranty certificate at any time. Please keep it properly together with this instruction manual.

CONTENT

A. Purpose of instructions:

The treasure hunting and tracking robot is an electronic product that controls a circuit board through code and works in conjunction with a motor to achieve treasure hunting functions. It uses ultrasound modules to explore and identify treasures, and it uses the trained identification model to identify the treasure hunted(the treasure can be a book, a cube or a key).

B. Components:

The robot is composed of Arduino board, bread board,

motor, power supply, and various modules, connected through wires, with a plastic shell.

C. Definition of terms:

1. Arduino board, as a hub, controls various modules through code and connects them through wires.

2. Motor, controlling wheel movement.

3. Power supply, supplying power to the entire robot.

4. Ultrasonic module, which emits ultrasonic waves for detecting surrounding obstacles.

5. Camera module, used for taking photos and recording videos.

6. Bluetooth module for transmitting image and video data.

7. Storage module, used to store data such as images and videos.

8. Steering gear, change the direction of the camera.

D. Warning

1. Before use, please read this instruction carefully and use correctly according to the requirements.

2. Do not tamper with the wires arbitrarily, as this may cause the robot to stop working or short-circuit.

3. Provide appropriate power supply for the robot, otherwise the effect may not be achieved.

4. If the robot encounters any abnormalities, please disconnect the power supply first and have a professional check it.

Step 1: Connect

Firstly, connect the power supply, place the robot at the entrance of the maze, and turn on the switch.

Step 2: Computer operation

Connect the robot's Bluetooth in the computer settings and open the website where the camera is located in the browser.

Step 3: Photograph

Waiting for the robot to enter the maze, during which the camera will transmit real-time images, allowing users to take photos and record at any time. While photographing, the trained model will help identify the treasure hunted by the robot, there will be a Graphical User Interface(GUI) showing the result of the recognition. The GUI will also show the video taken by the camera in real-time, besides, it can also show a label with the shape of a rectangle that can tell exactly what the treasure is on the screen, which is quite efficiency.

Step 4: Use the website

After you can explore treasures with robots, you'll want to use a platform to better manage your robots and view your records and acquired treasures. We provide you with a website to do these things and you can use it through the following process.
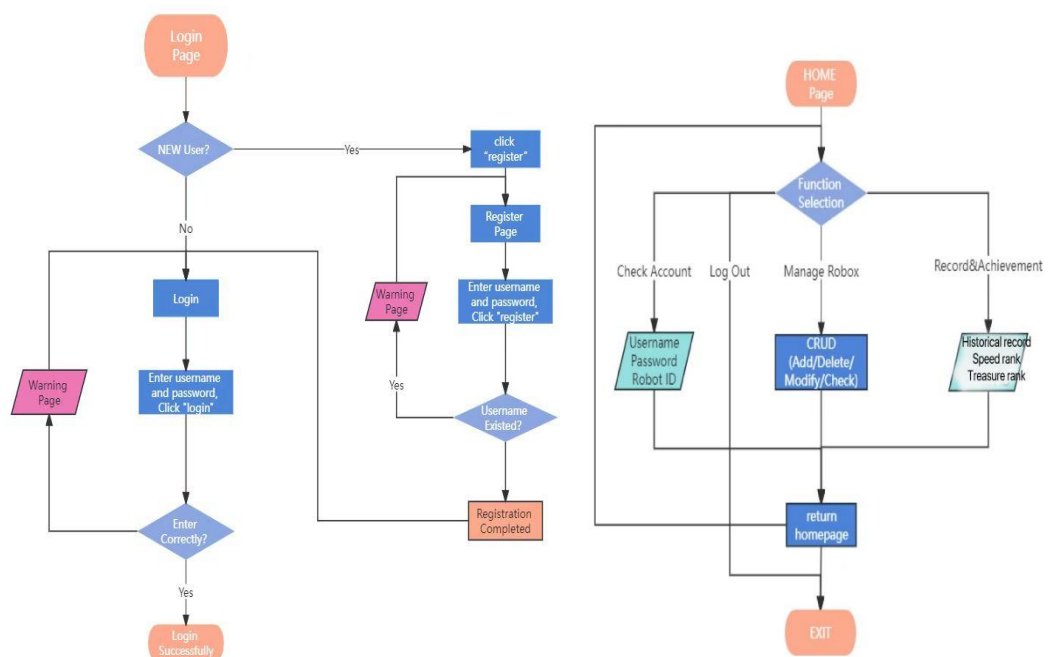

Figure1: flowchart about the website's using

1.Unzip file

First of all, you unpack we provide web site source code to the local a compiler and import the .sql file into the database, and then copy the URL http://localhost:8080/testWeb/to your browser .

2. Register / login

After you run the program, the login page and registration page of the website will appear. You can log in to the site by entering the correct username and password, or by creating a new account (note that your username needs to be identical to that of an existing user). But don't worry, the system will tell you)

LOGIN

user name :

password :

login

register

Figure2: register / login page

3. homepage

After you have successfully logged in, go to the home page. In addition to the logout function, the home page can lead to three modules: check personal information, manage users' bots, check historical expeditions and rankings.

Welcome Bob , choose what you want

Check Account

Manage Robot

Record & Achievement

Log Out

Figure3: home page

- Check personal information:

Here you can view your username and password, as well as the unique bots automatically assigned to you by the system.
- Manage users' bots:

Here you can view, add, modify and delete your own robot information (robot name and picture). Note that each user can only have one robot. Go ahead and add your robot and give it a cute name and photo!

robot'name   [_____]

robot'picture   ○ red ○ green ○ yellow

Figure4: manage your robot

●   Historical expeditions and rankings:

Here you can see the entire exploration record of your robot, including the time of each start, the time of each finish, the amount of treasure obtained, etc. In addition, the system generates some data based on your records to represent your achievements, such as your speed ranking, treasure ranking, and so on. You can also see the information and achievements of the top players in the entire system.

YOUR Exploration History Record

number	robot ID	start time	end time	treasure obtained amount
1	r0001	2023-01-14 13:30:37	2023-01-14 13:40:37	1
2	r0001	2023-02-01 13:33:08	2023-02-01 13:37:22	1
3	r0001	2023-06-01 13:36:26	2023-06-01 13:37:35	2
4	r0001	2023-06-01 14:36:51	2023-06-01 14:41:58	1
5	r0001	2023-06-06 13:38:10	2023-06-06 13:43:15	1
6	r0001	2023-09-05 13:37:35	2023-09-05 13:56:41	2
7	r0001	2023-10-01 13:41:11	2023-10-01 13:59:41	1

YOUR Speed Achievement

Total duration: 62.71 minutes

Speed: 0.14 treasures per minute

Speed ranking: 3

Robot ID with speed first player: r0003 His speed: 0.30 treasures per minute

YOUR Treasure Achievement

Total number of treasure: 9

Treasure ranking: 1

Robot ID with the most treasure player: r0001 His treasure number: 9

[return home page]

Figure5: check your records and achievements

Note: data about your expedition will be automatically updated in the background only when you use the module. But don't worry, it ensures that the latest data is entered when you check it.

Additional notes:

Our website is also constantly being upgraded and is currently unable to provide real-time query data and display photos of acquired treasures. Features expected to be completed in the next upgrade:

1. Real-time query and exploration data, such as providing real-time video
2. Show the photo of the treasure

Trouble shooting

Possible phenomena that do not meet users' expectations and their corresponding reasons and solutions.

1. If it can not show the label or the real-time video successfully, please wait for a second or check if the camera is obstructed.

Maintenance

1. After using the robot, it is necessary to disconnect the power supply and regularly charge or replace the battery.
2. Do not forcefully collide with the robot and do not tamper with the wires at will.
3. If you have any hardware device issues, please contact a professional.

About maze

A maze is a square with a side length of one meter, divided into nine squares. Treasures can be found anywhere in the maze, and there are walls inside the maze to separate them.