6. Tag Recognition

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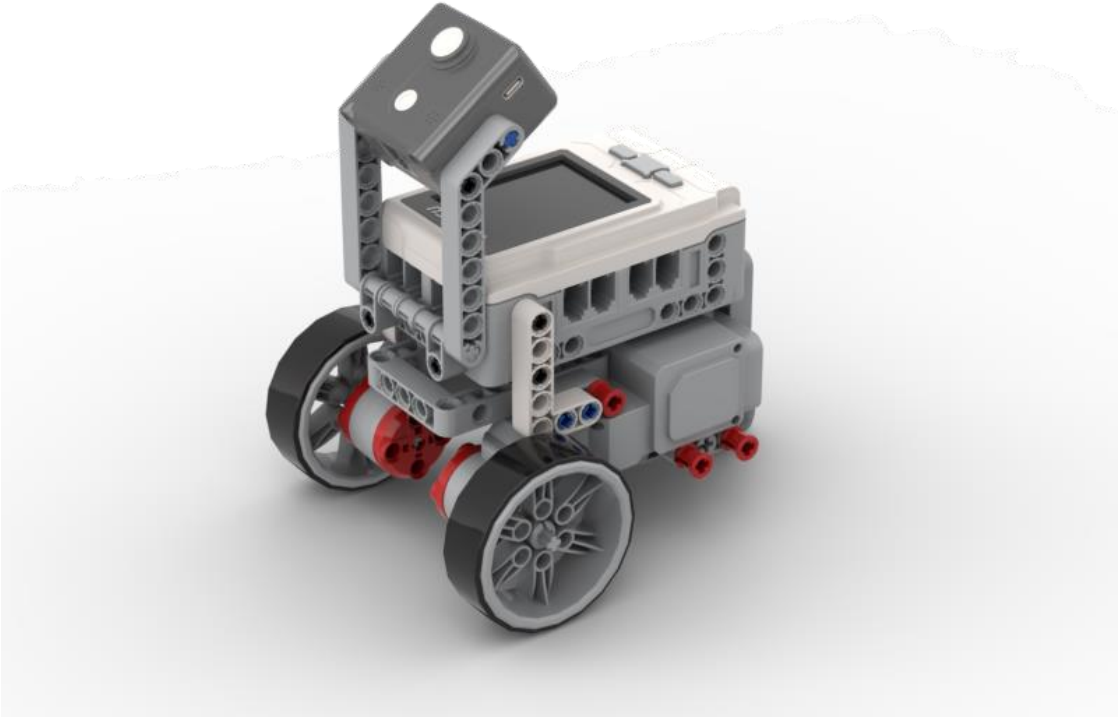
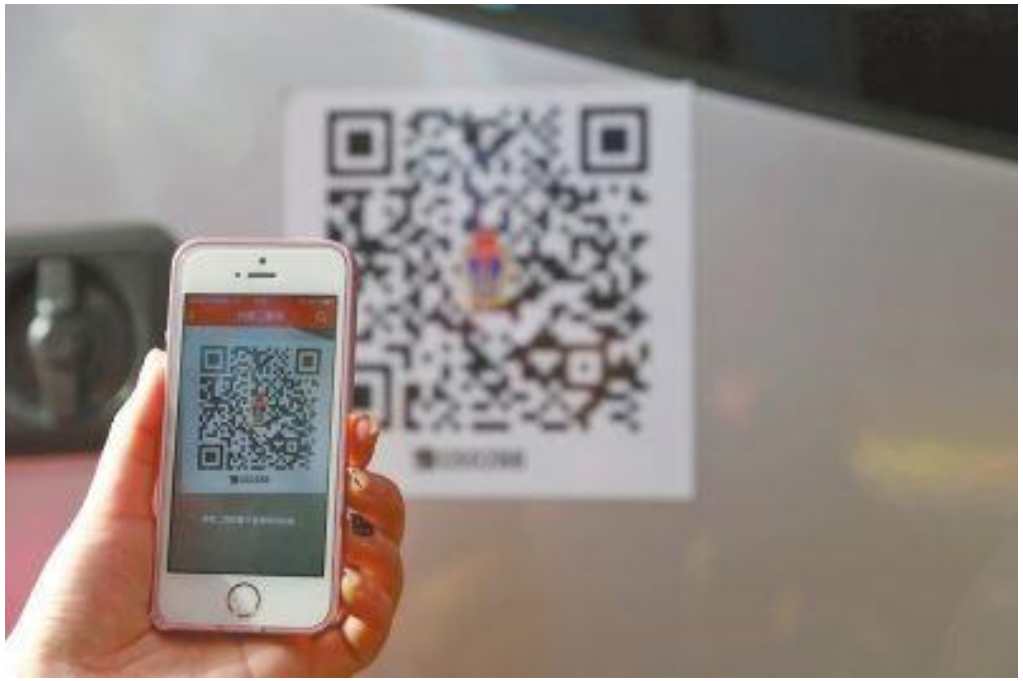


Theme Introduction



QR codes are widely used in real estate projects, home furnishings, automobiles, scenic tours, brick-and-mortar stores, etc. Businesses can use QR codes on any promotional media, and users can scan the codes through cell phone software to access various services pushed by the business on their cell phones.

Theme Introduction

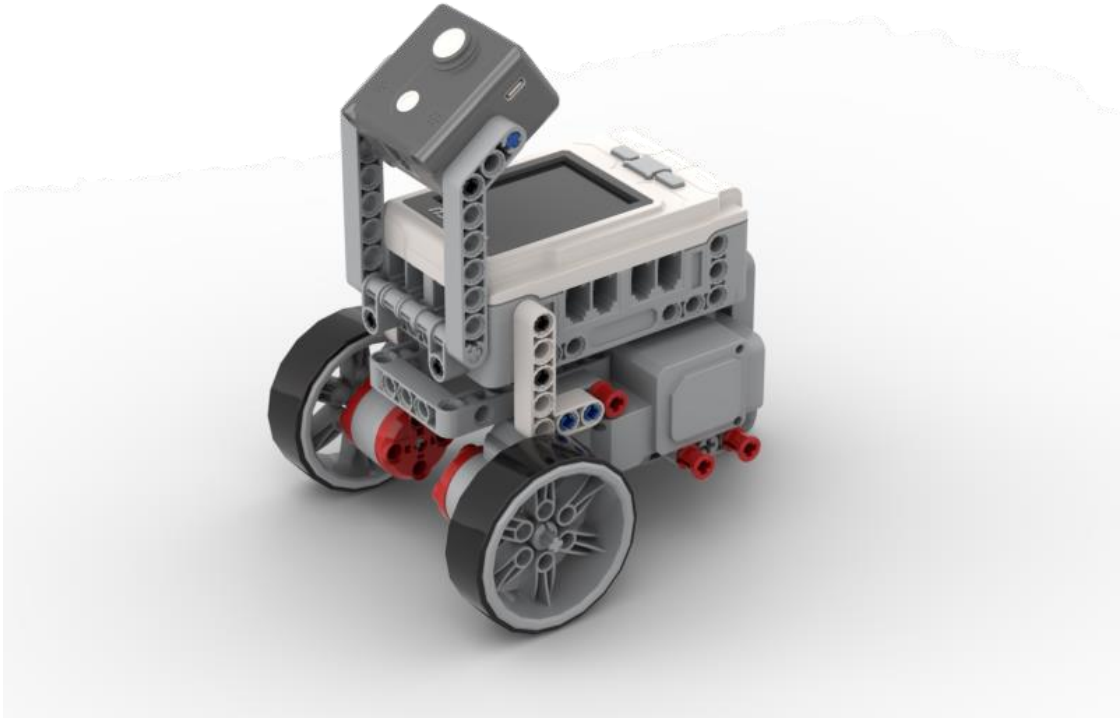


We will be able to generate an exclusive QR code on the phone through the software, which can be used as an exclusive ID or payment password and provided to other devices for scanning and authentication.

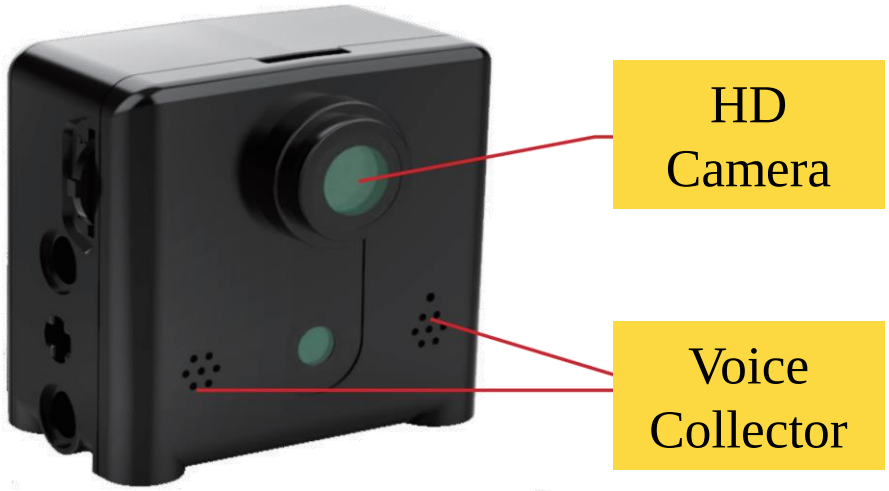
Learning Objectives

1. Understand the principle of tag code recognition

2. Learn to use the tag code mode of AI audio-visual module



New knowledge

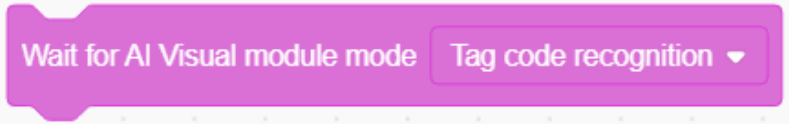
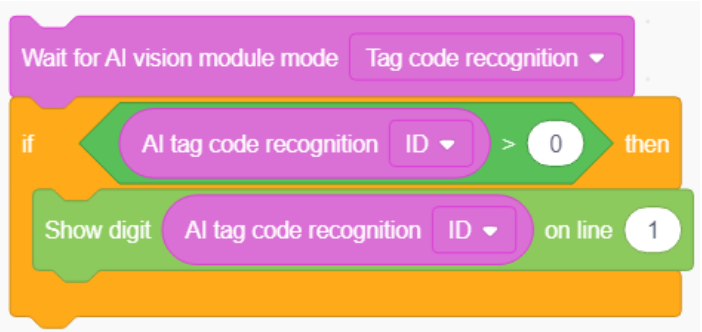


Tag code recognition

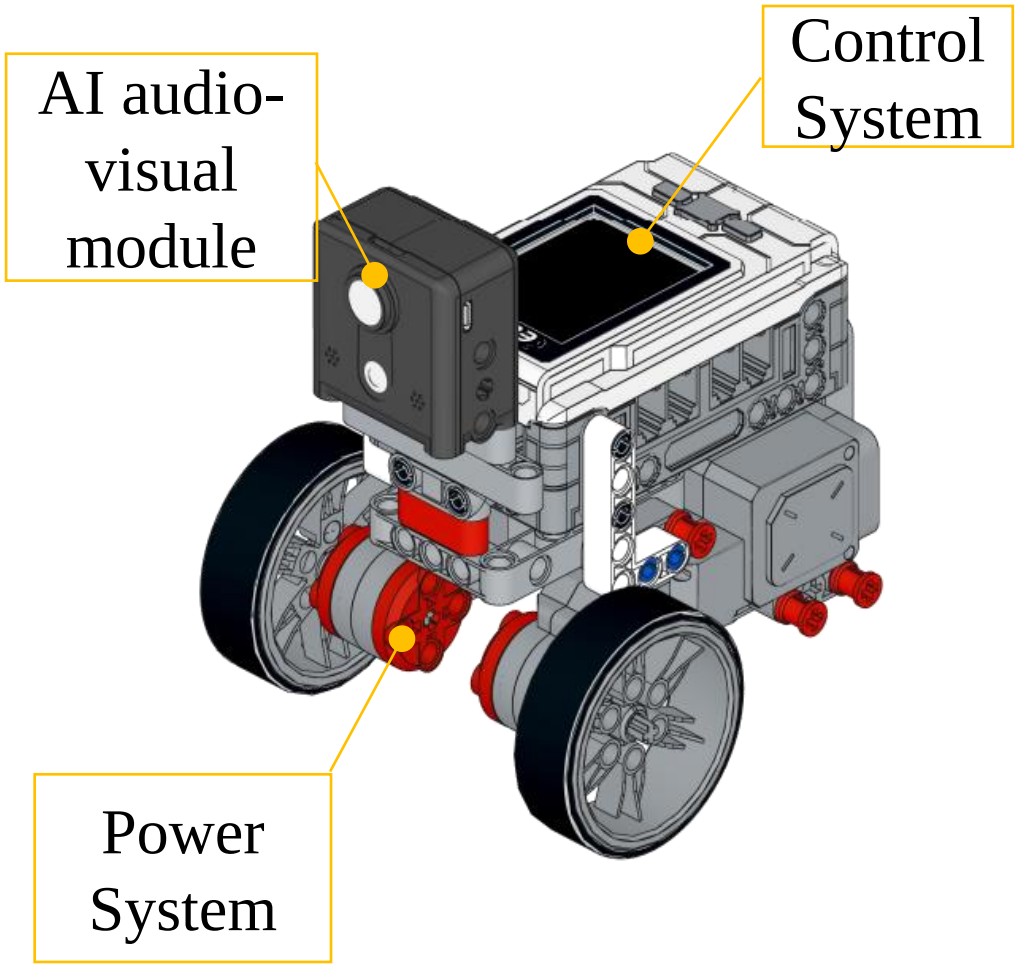
Tag code recognition, which is to continue capturing the information implied by the tag code in the subsequent frames provided that the tag code is detected. the AI audiovisual module has the function of recognizing the tag code, and when the AI audiovisual module recognizes the tag code, it returns the value corresponding to the tag code to the controller.

New knowledge

Software Modules

Module	Description	Application examples
	Set the AI audio-visual module mode to tag code recognition mode Click "▼" to select tag code recognition.	
	The ID value of the tag code can be detected and the data is returned to the controller. Returns 0 if the tag code is not recognized.	

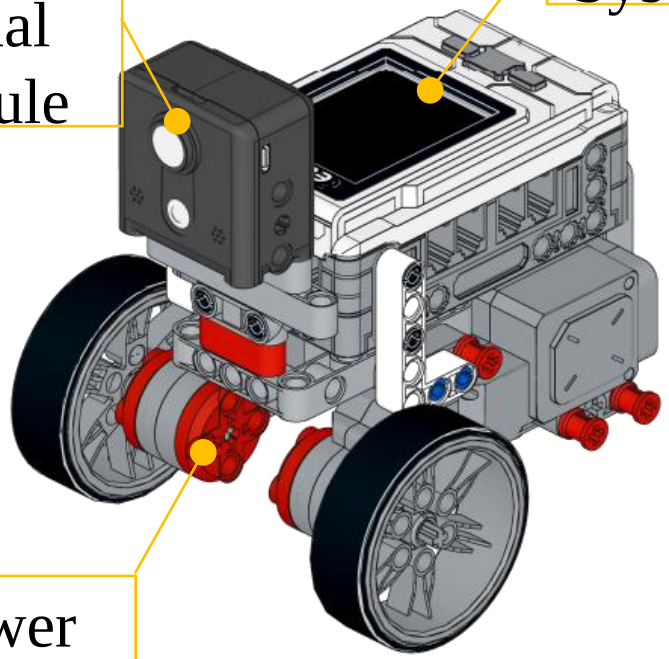
Design and Assemble



Build a model

Assemble a gatekeeper robot according to the build manual and implement a gatekeeper robot that uses a tag code as a password.

Design and Assemble



Build a model

In this lesson, we need to use two motors for the power system, a controller for the control system, and an AI audio-visual module. The motors are connected to M1 and M2 ports of the controller, and the AI audio-visual module is connected to P8 port of the controller.

Requirements: Install the AI audio-visual module on top of the gatekeeper robot.

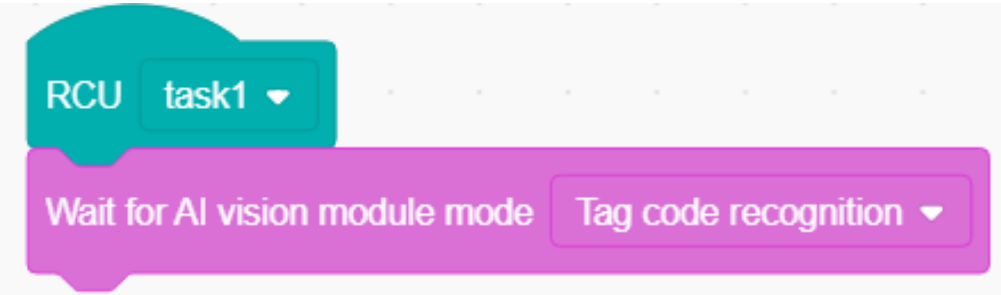
Programming

Programming idea：

When the program starts, switch to the tag code recognition mode and enter the initialization state.

Specific idea: In the initialization, the tag code recognized for the first time is set as the password. Then the gatekeeper robot starts to detect the password and execute the action. When the detected password is equal to the set password, the robot moves backward; otherwise, the robot moves forward.

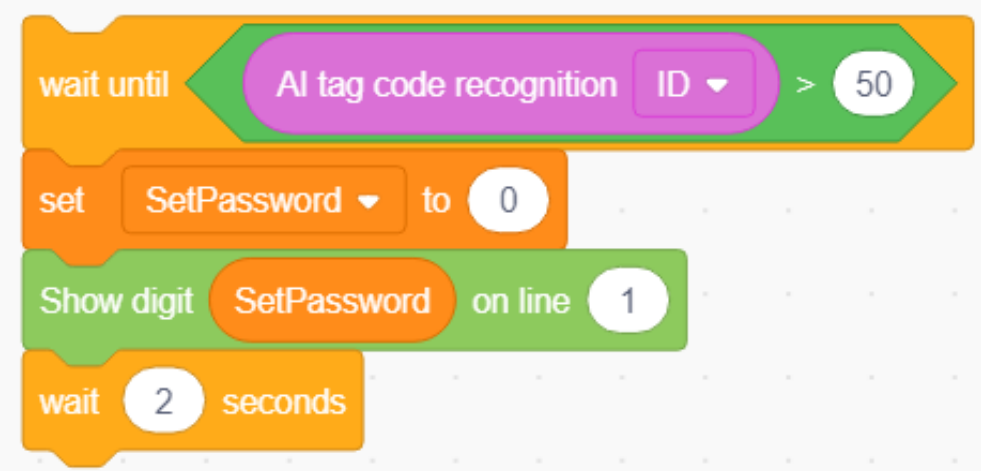
Programming



Let's start programming the gatekeeper robot.

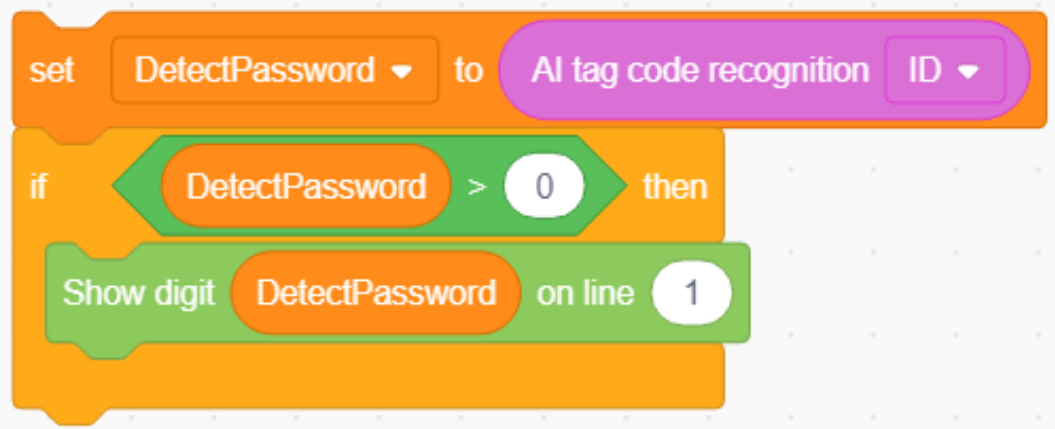
Set the AI audio-visual module to "tag code recognition" mode.

Programming



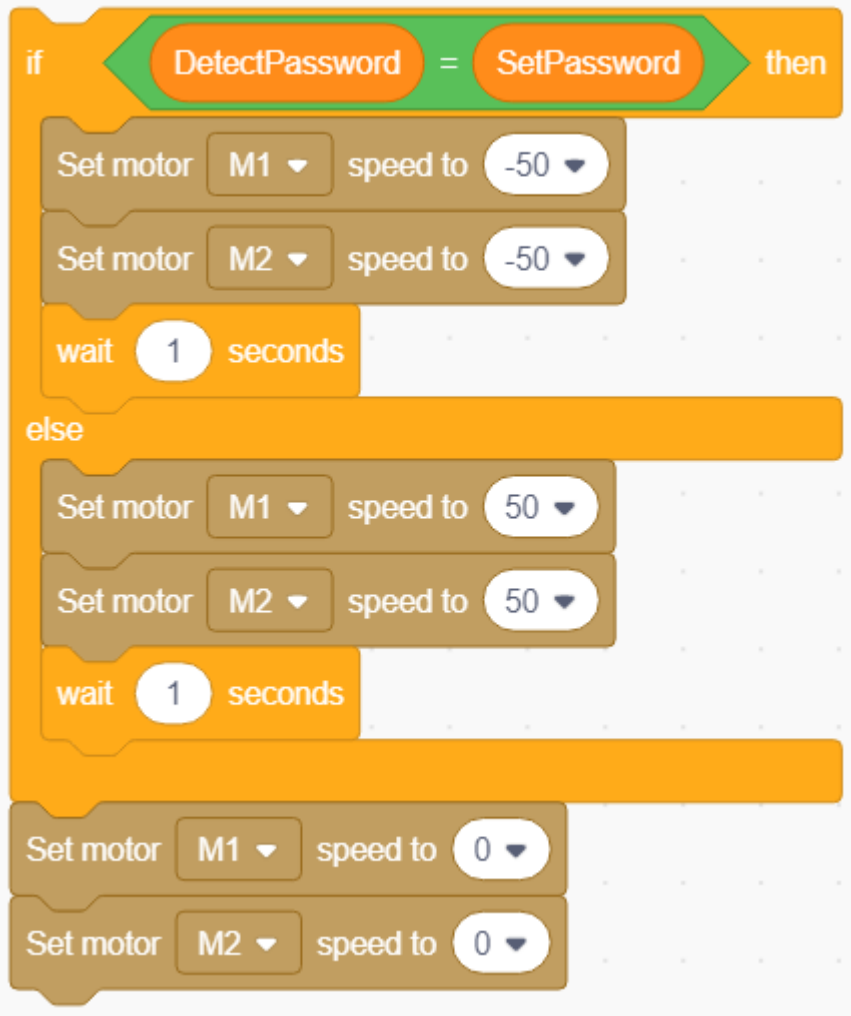
1. Wait until the tag code is identified;
2. Create a new variable named “Set Password" and set it as the ID of the identified tag code;
3. Display the value of the variable “Set Password" on the first line of the screen;
4. Wait for 2 seconds, and leave some time to remove the label code to avoid repeated identification of the label code.

Programming



1. Create a new variable named “Detect Password" and set it as the ID of the identified tag code;
2. If the value of “Detect Password" is greater than 0, that is, the label code is recognized, the value of “Detect Password" will be displayed on the first line of the screen;

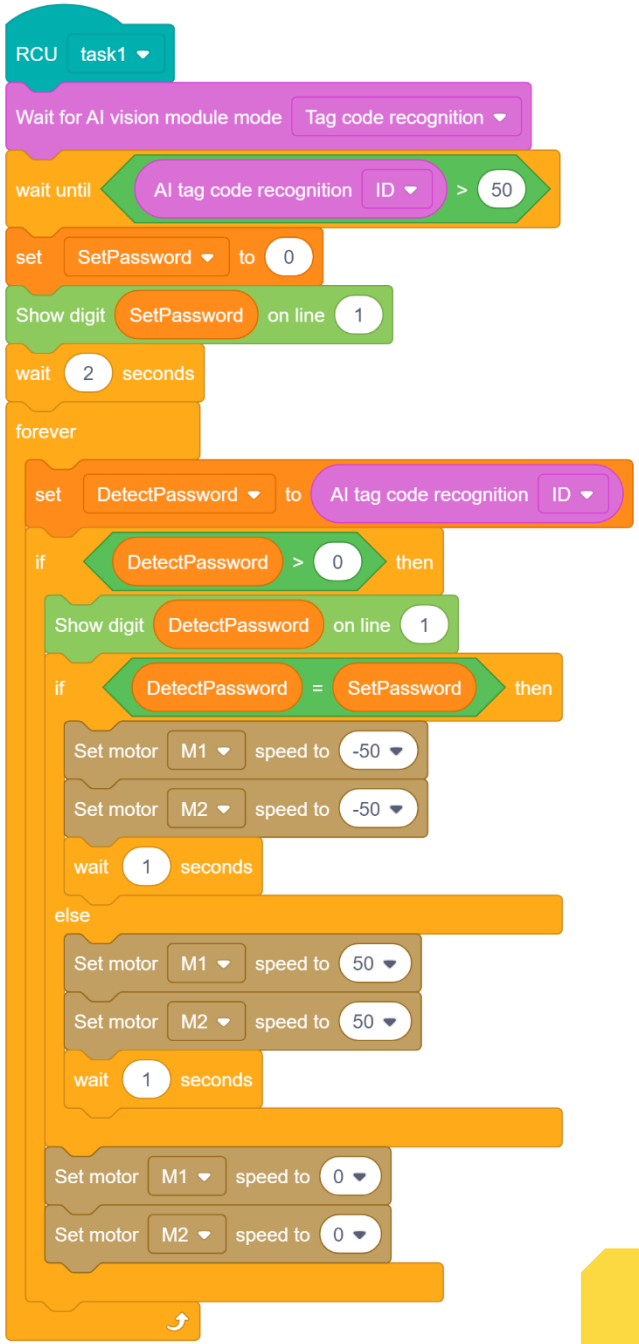
Programming



1. If the value of "Detect Password" is equal to the value of "Set Password", let the gatekeeper robot back for 1 second;
2. Otherwise, let the gatekeeper robot move forward for one second, and finally stop.

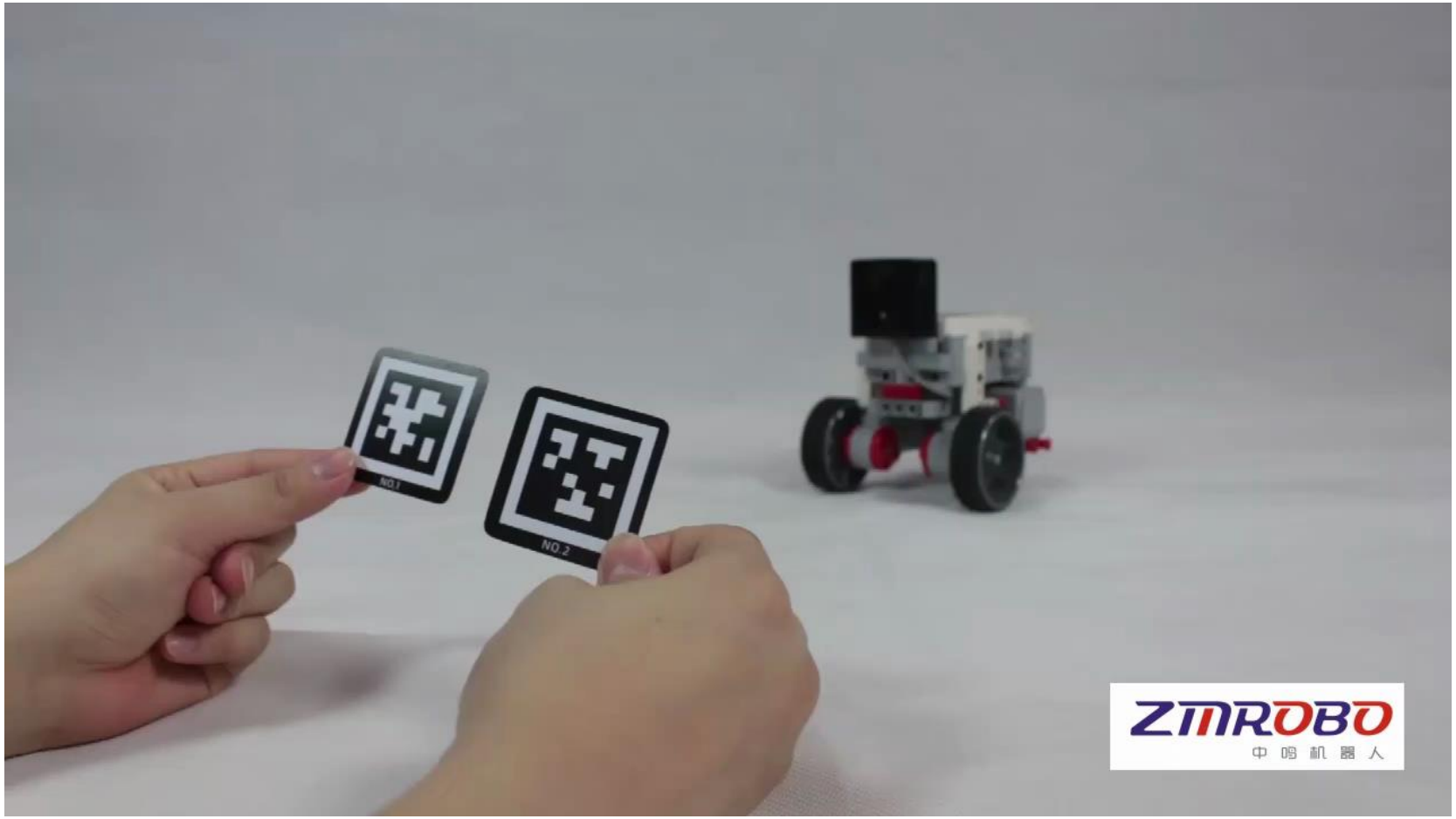
Programming

Integrate the program together, and add the "repeat execution" programming module to make the program execute continuously, and complete the complete program writing of the gatekeeper robot.



Programming

Sample Demonstration



Course Extension



2-dimensional bar code

Two-dimensional code, also known as two-dimensional barcode, its common form is QR Code, QR full name is Quick Response, it is a super popular coding method on mobile devices in recent years, it can store more than traditional Bar Code barcodes. information, and can also represent more data types.

A barcode is a graphic identifier used to express a set of information by arranging multiple black bars and blanks with different widths according to certain coding rules. The bar code can mark the country of manufacture, manufacturer, commodity name, production date, book classification number, starting and ending location, category, date and many other information of the item.



Barcode