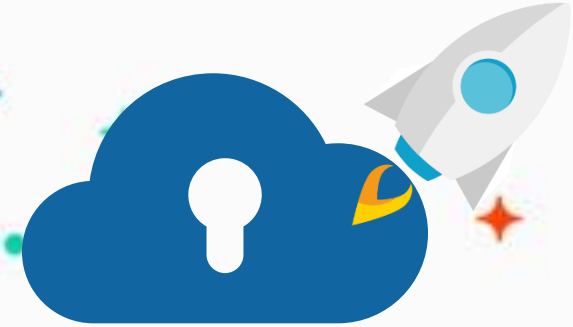


edu.zmrobo.com

Lesson 8. Welcome Sign

LECTURER:

Lesson Objective

Learning Objectives

1. Understand the role of signboards.
2. Understand how to periodically switch the direction of motor rotation.

Possible Difficulties

1. The motor periodically switches the direction of rotation.
2. The LED display of the welcome sign.



Background Information



Background Information



To attract more customers, merchants often use a lot of promotional means. The most common is to place signs or small advertisements in their stores. When consumers pass by the store, they can naturally receive the information that the merchant wants to convey. With the development of technology, merchants have more and more ways to promote and publicize.

Background Information



A signboard refers to a signboard hung in front of a store as a sign, mainly used to indicate the name and mark of the store, which can be called a store logo and can have vertical strokes, horizontal strokes, or horizontal inscriptions on the archway in front of the door, or on the eaves Hang a huge plaque below, or inlay the characters horizontally on the building. The coordinates are the signboards set up on the counter in front of the store. Before the Ming Dynasty, floor-mounted signboards were more common; the wall signs were the business scope and category of the store written on the store wall.

Background Information



The design of the signboard plays a very important role, and the design of the signboard represents the image of the store. In addition to impressing people and helping people remember, eye-catching signs can also attract new customers from outside. Common types of signboards are: sitting (vertical), hanging, flagpoles, etc. With the development of technology, the color of signboards has also changed, from single-color LEDs to the current neon lights. The richer the color, the more attractive it is. The colorful LED signboards that symbolize Hong Kong's street culture are a good example.

Background Information



With the development of online shopping, signboards have gradually lost their physicality, and they appear on our screens in the form of pictures, text, or symbols, which are what we often call trademarks or logos. Image trademarks can make consumers remember the main body of the company and the brand culture, which plays a role in the identification and promotion of the company that owns the trademark.



Knowledge Introduction

Knowledge Introduction



To attract consumers, merchants often rush to use new technologies to promote themselves, such as 3D advertisements, which convey richer information through more three-dimensional images, making it easier for consumers to remember brand stories or advertising ideas.

Knowledge Introduction



In addition to the animation, there is also a responsive welcome sign with lighting effects. When it senses that customers are coming to the store, it will send out prompt sounds and welcome words to remind the store staff and give consumers a deep impression of the store. Today, we will make a sensory welcome card to make a welcome effect.

Knowledge Introduction | Show moving string



Make the dot matrix display the moving character string.

Parameter value: string, supports Chinese and English characters, does not support special symbols

Parameter values: 0~3, respectively refer to moving leftwards, moving rightwards, moving upwards, moving downwards

Parameter value: 0~100, control display font rotation speed

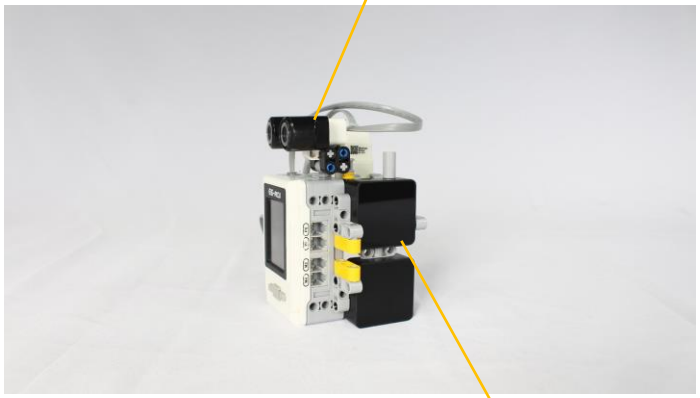
Parameter value: 0~15, 16 levels of controllable brightness adjustment



Practice

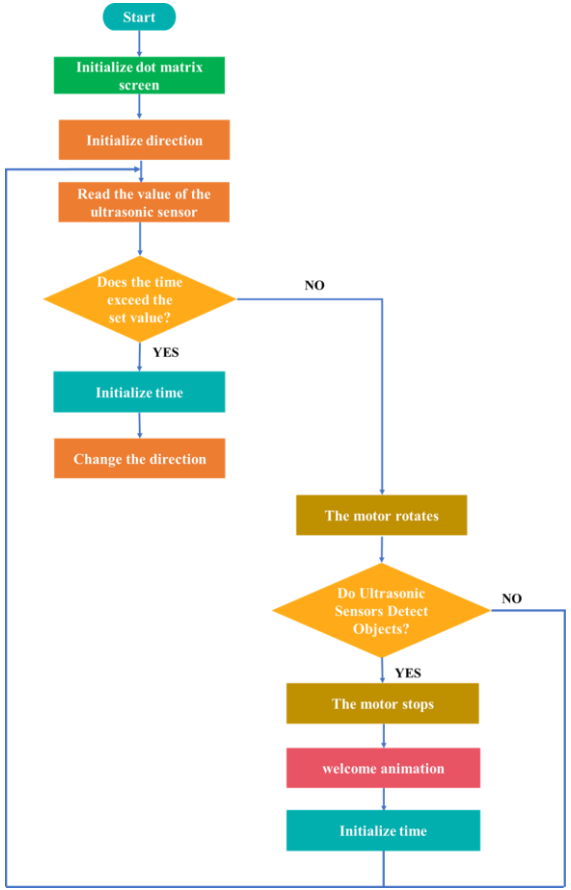


New Knowledge



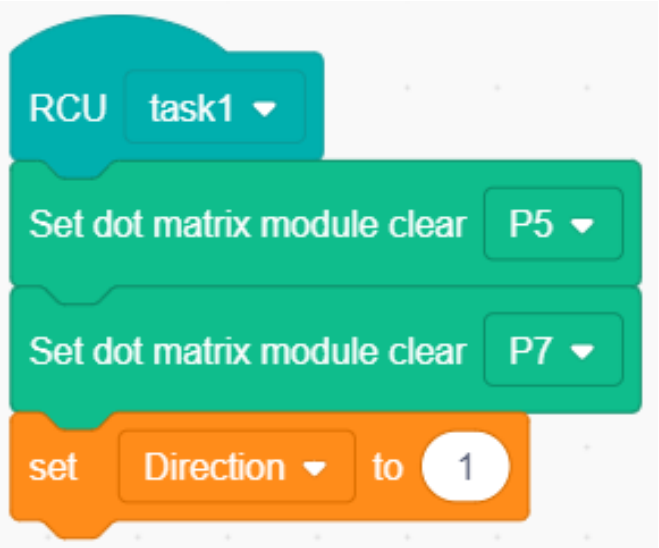
According to the building manual, build a welcome sign. When the ultrasonic sensor detects that an object passes by, the welcome dot matrix screen will light up.

Practice | Flow Chart



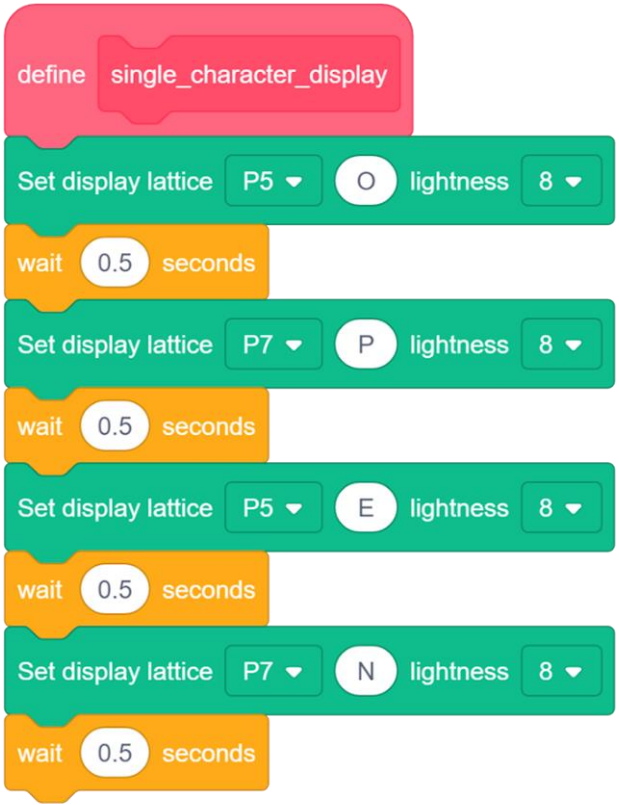
The motor controls the ultrasonic sensor to shake the head periodically. When the ultrasonic sensor detects that an object passes by, a welcome slogan on the dot matrix screen is displayed.

Controlling the direction of motor rotation with controller time can be done by multiplying by -1.



Initial settings

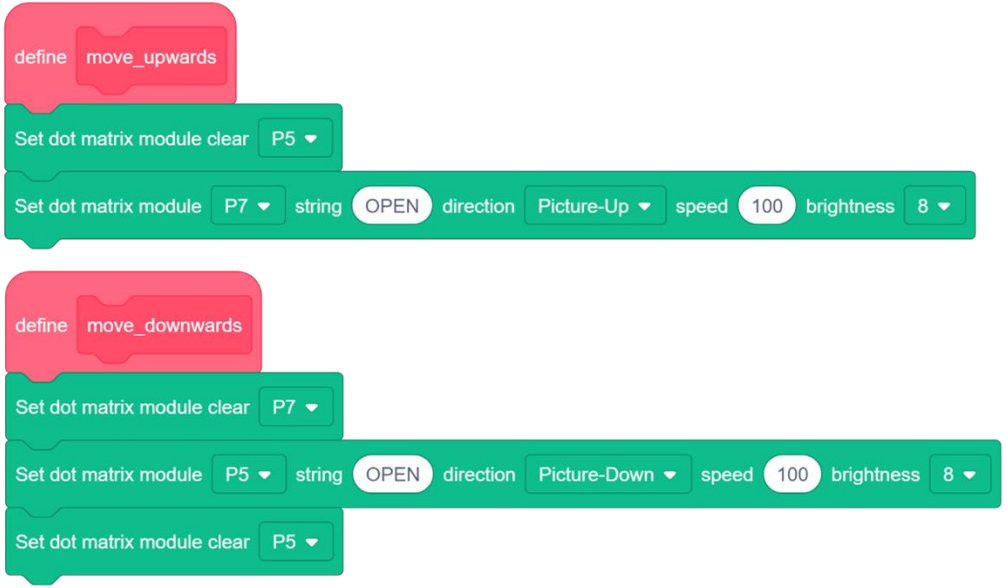
Initialize the dot matrix screen and variables. The initial value of direction can be -1 or 1, but not 0.



Single-character Display Function

Define a single-character display function, and the two dot-matrix screens will alternately display a character every 0.5 seconds.

Practice | Programming

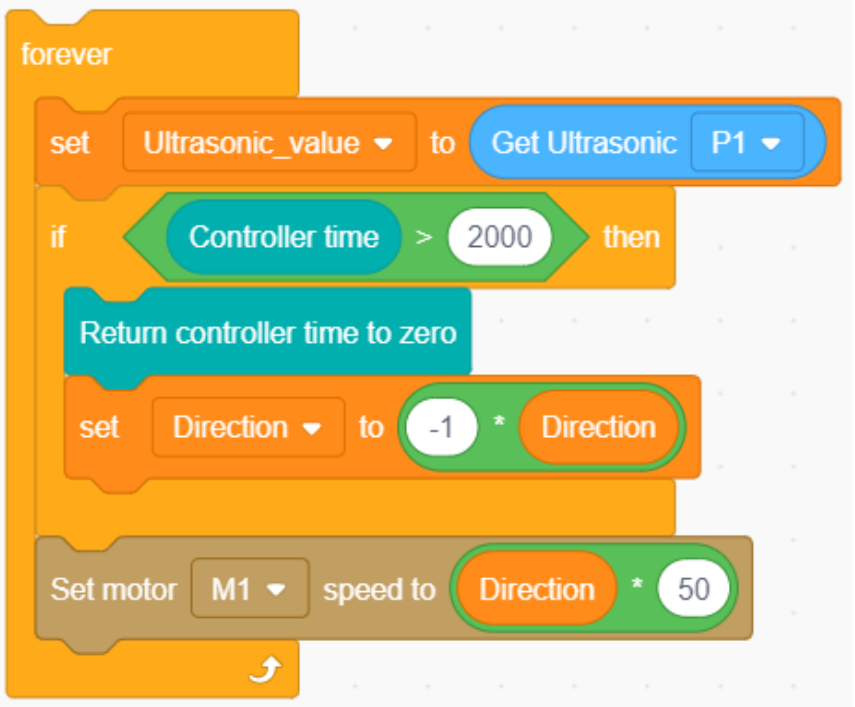


"Mobile Display" function

With a moving display code, the welcome text will move up or down.

Note that the last display function needs to add screen-clearing code.

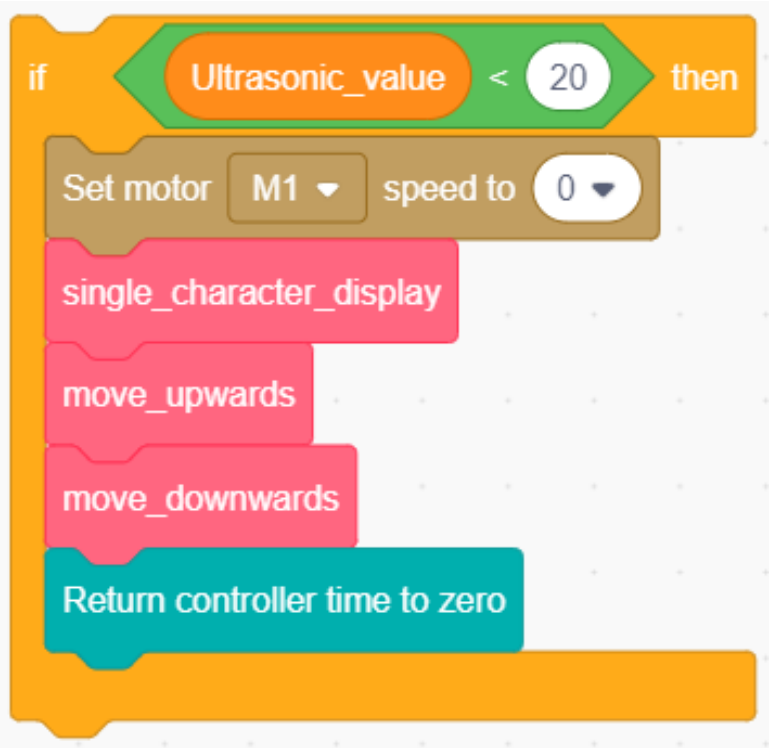
Practice | Programming



Determination of direction

To control the motor's direction, the ultrasonic sensor first reads its value and the controller judges the time. If the time is more than the set value, the direction value is multiplied by -1, and the motor rotates in the corresponding direction.

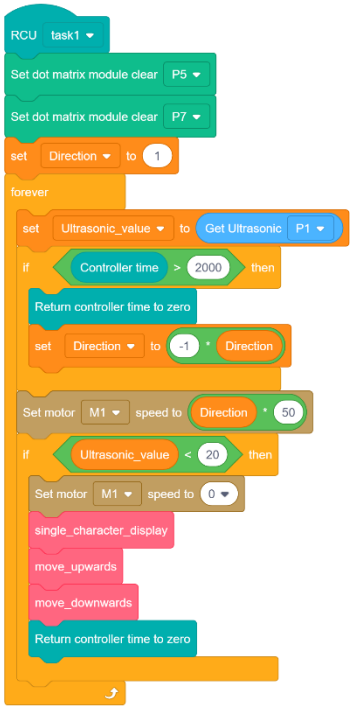
The initial setting direction is 1, when it is multiplied by -1 periodically, it will get: -1, 1, -1, 1, ... such values to control the motor to rotate clockwise or counterclockwise.

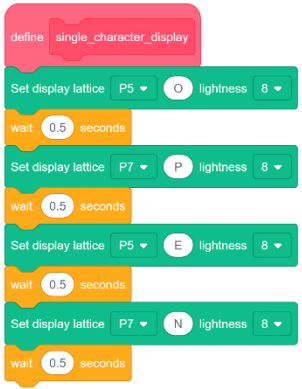


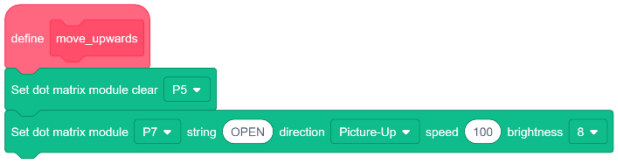
Judgment of ultrasonic value

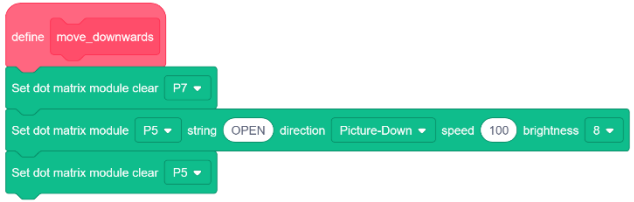
When the ultrasonic judgment is satisfied, the motor stops rotating and executes three display functions, and the controller time resets to zero after the display is completed.

Practice | Programming







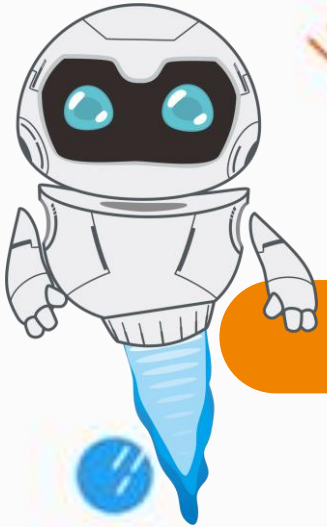


Integrate the program

Integrate the entire program according to the flowchart.

Practice | Programming





Results

Program Optimization

This lesson realizes the function of detecting and welcoming guests. When the ultrasonic sensor detects that an object is approaching, it stops rotating and lights up the dot matrix screen.

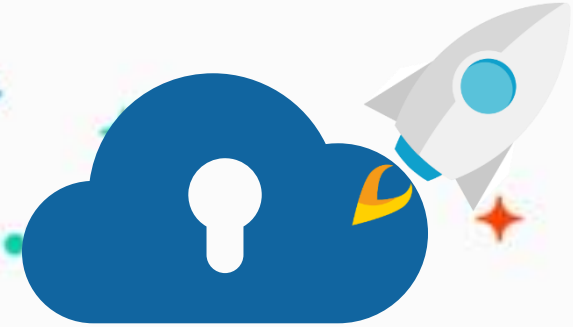
Next, modify the program and increase the sound prompt function.

Requirement: When the dot-matrix screen displays text, a prompt will sound.

Further Reading



The welcome robot is a high-tech exhibit integrating speech recognition technology and intelligent motion technology. Feeling, embodying humanity. The 2010 Shanghai World Expo mascot "Haibao" finally lifted the veil of mystery, and the cute shape of the blue "person" made everyone feel fresh and new. Haibao, with the Chinese character " " as the core idea, is matched with sea blue representing life and vitality. His laughter shows China's positive, optimistic, healthy and upward mental outlook; the movement of his chest raised and the cooperation of his hands show tolerance and enthusiasm; his raised thumb is a sincere letter to friends from all over the world invite.



edu.zmrobo.com

Thanks!

LECTURER: