Appendix Two

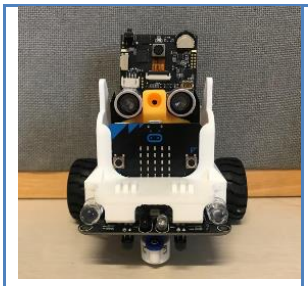
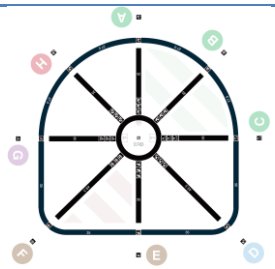
Food Delivery Experiment Setup Guideline

Introduction

Reasoning is the process of making decisions from available information. Human reasoning can be loosely grouped into three levels: Skill-based, Rule-based and Knowledge-based. To introduce the concepts of reasoning to students, the CUHK-JC iCar Food Delivery Experiment is developed to demonstrate the behaviour subject to the three different levels of reasoning. Students can understand the characteristics of three levels of reasoning respectively by observing the delivery route of the iCar under different scenarios.

Materials for the Experiment

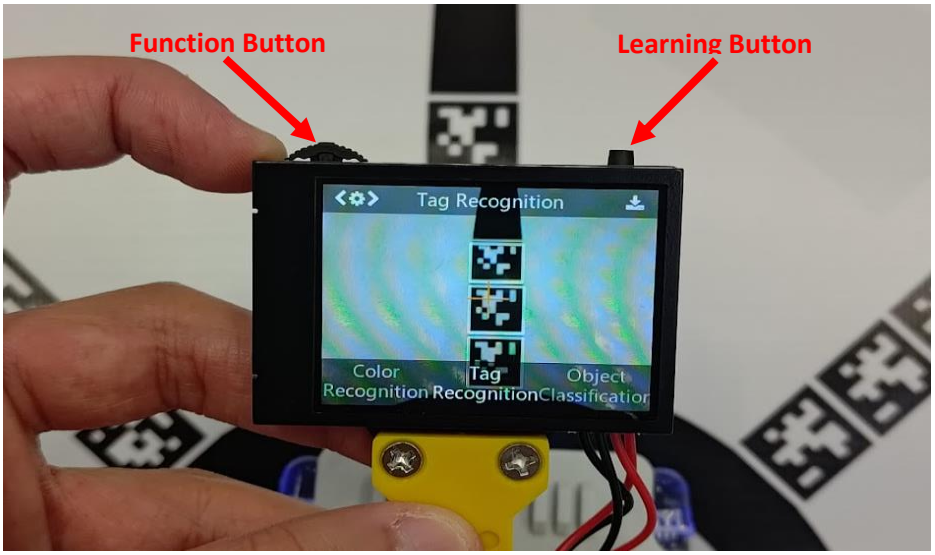
The following items are needed to implement the experiments:

 CUHK-JC iCar	 95x95cm Experiment Map (Download link)	A notebook/PC	Micro USB Cable

1. Huskylens Setup Procedures

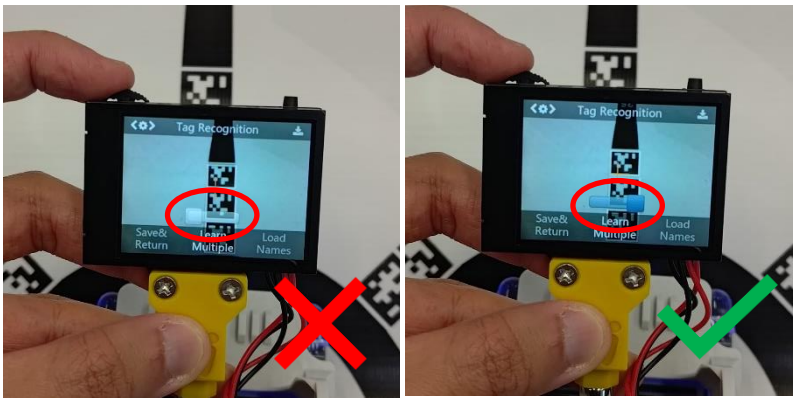
1. Switch on the power button at the back of iCar.

2. Scroll the function button of the HuskyLens until the “Tag Recognition” mode is reached.

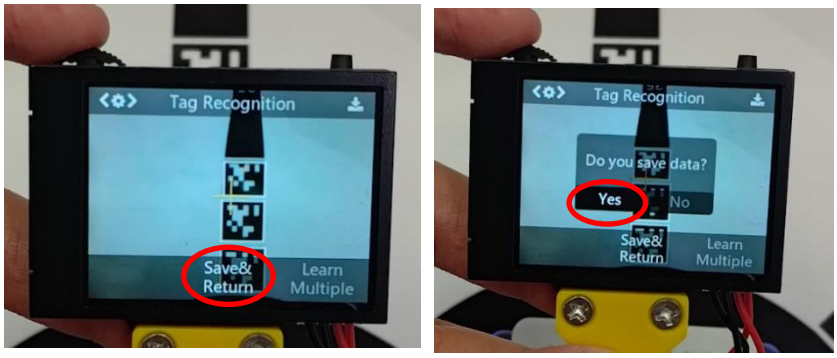


3. Long press the function button to modify the settings.

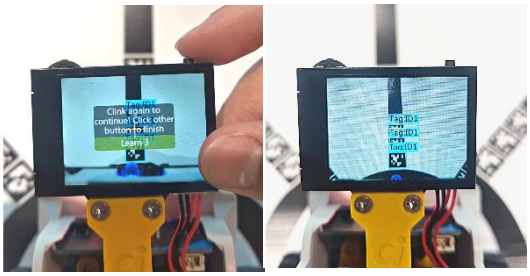
4. Scroll the function button to “Learn Multiple”, then short press the function button. If the screen shows a white bar, scroll the function button to the right to enable "Learn Multiple" mode. Then short press the function button to confirm.



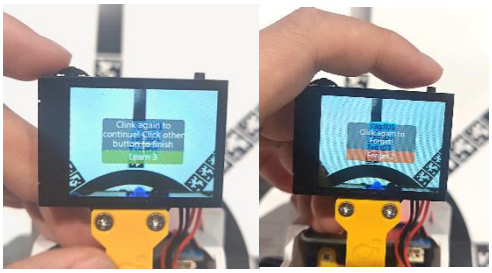
5. Scroll the function button to "Save & Return," short press the function button and the screen will prompt “Do you save data?”. Select "Yes" and short press the function button to confirm.



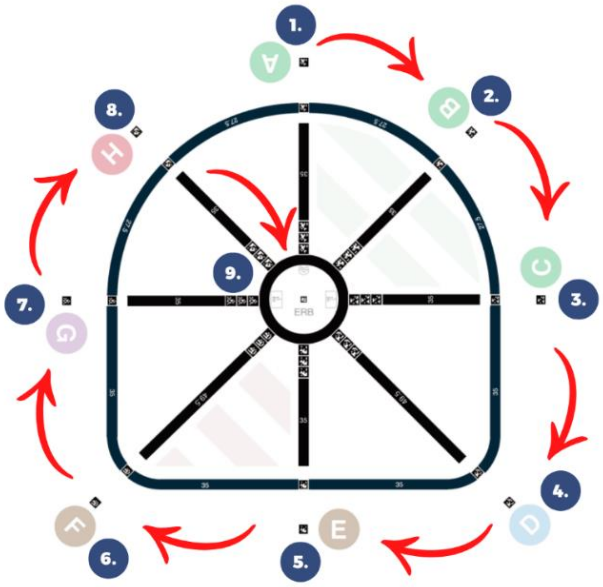
6. Point the HuskyLens towards tag A on map, and short press the learning button, the monitor will prompt “Click again to continue! Click other button to finish.” If the tag is correctly recognized, short press the learning button again to confirm.



7. If the tag is wrongly recognized, short press function button to cancel, and click learning button twice to forget.

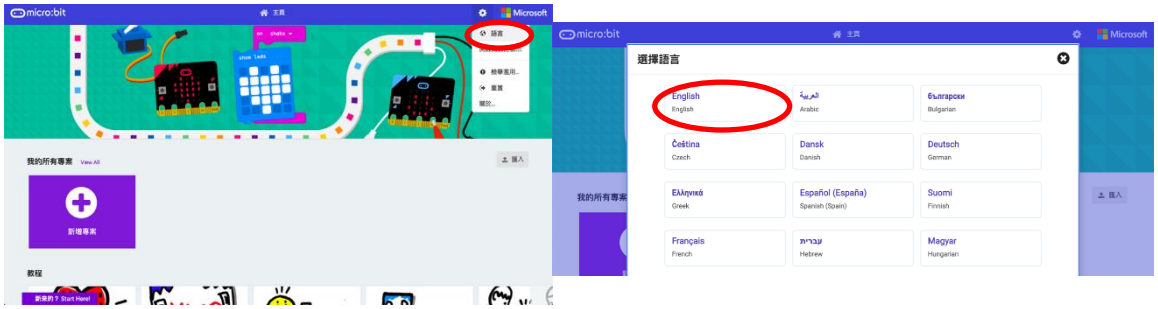


8. Repeat step 5 to learn the tags next to the letter A-H on the map in clockwise direction. Finally, learn the tag at the center (Home) of the map.

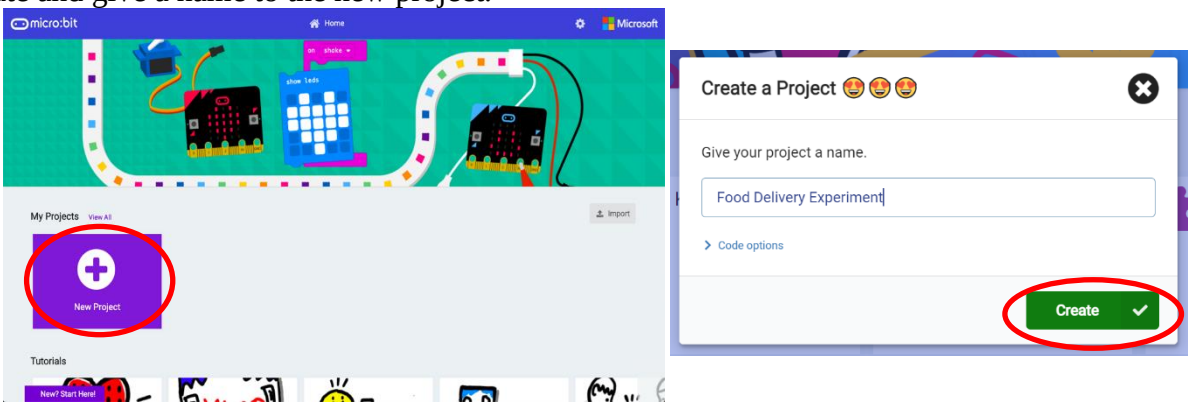


2. Micro:bit Setup Procedures

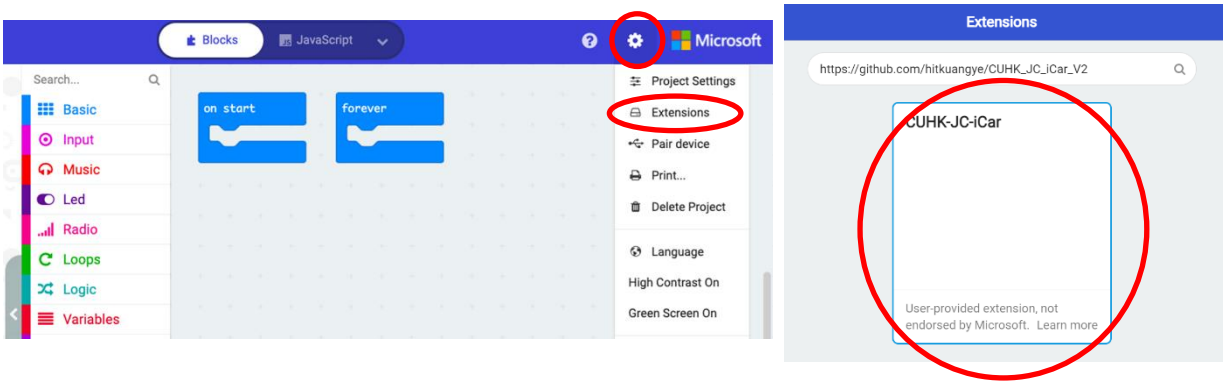
1. Visit https://makecode.microbit.org/ . Change language setting to English on the top right hand corner of the webpage.

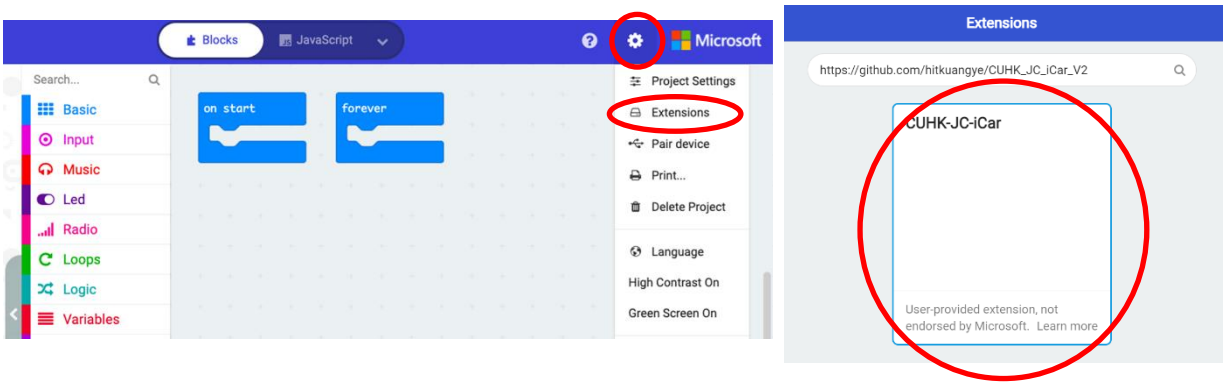


2. Create and give a name to the new project.

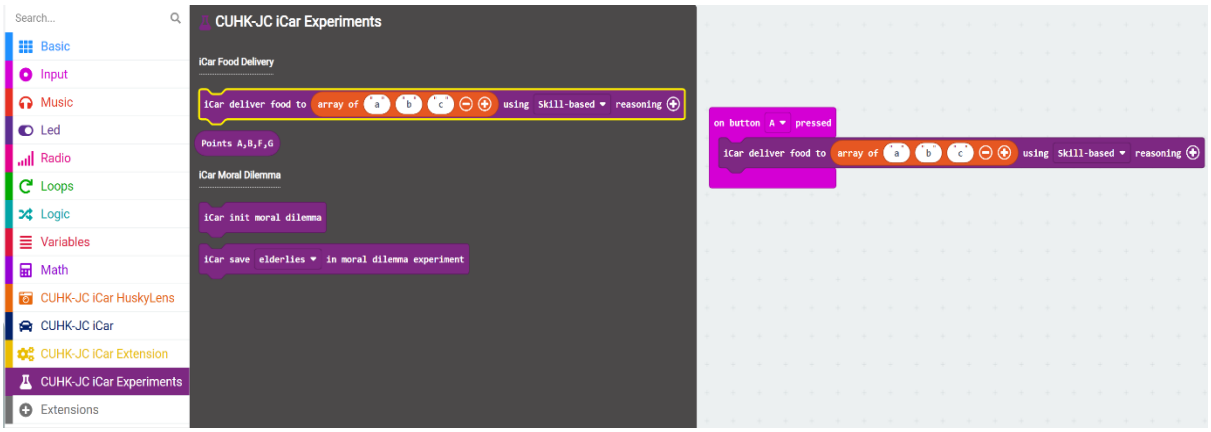


3. Click "Extension" button on the top right-hand corner of the webpage. (https://github.com/hitkuangye/CUHK_JC_iCar_V2).

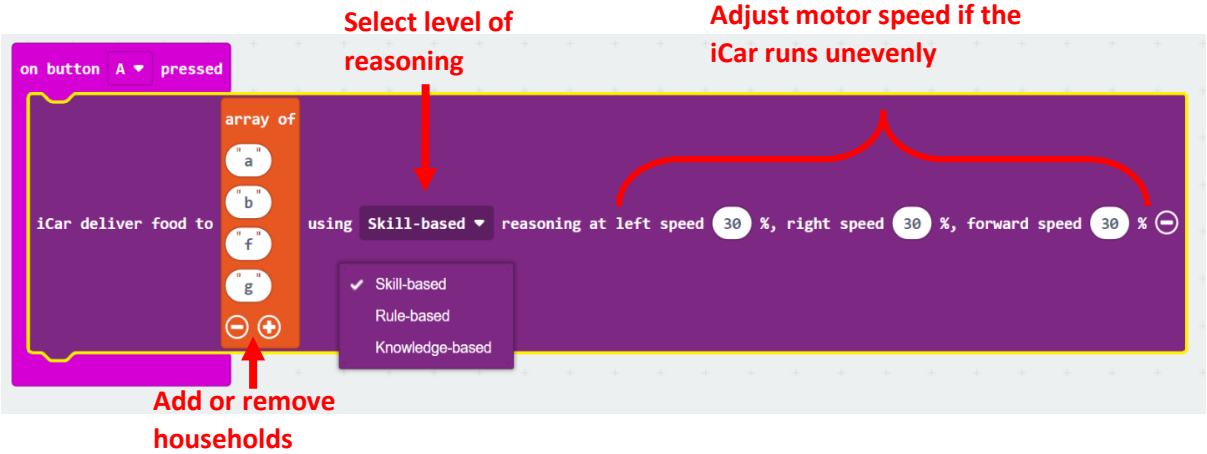




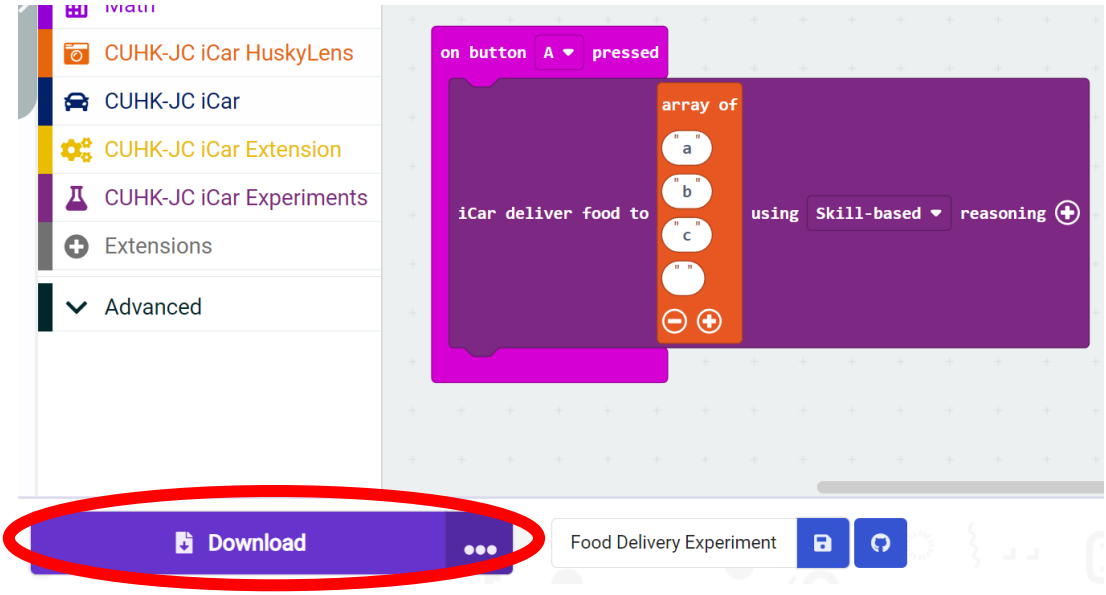
4. Pull the blocks onto the workspace as the picture shown below. The “On button A pressed” block can be found under the “Input” tab.



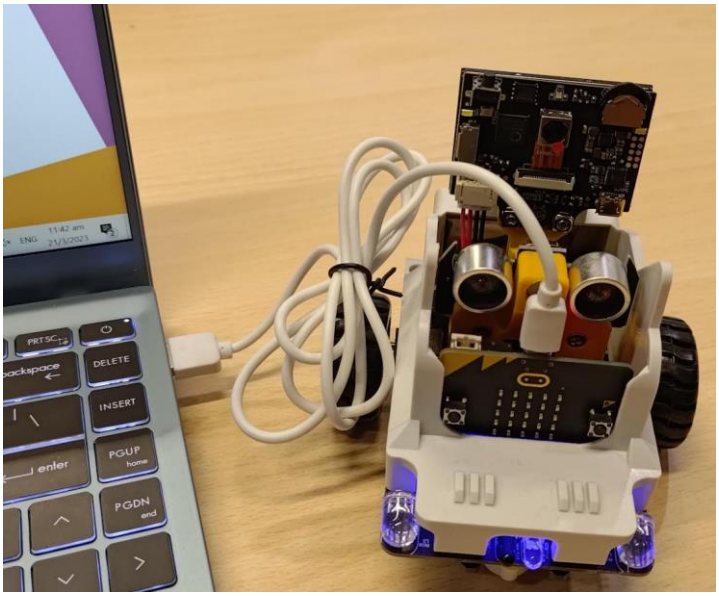
5. To set the Households for delivery for the run, click the “+”/“-“ button in the array block. Then adjust the desired reasoning level by the drop-down list. It is suggested to use default speed setting for the iCar. In case the iCar operates at slightly different speed, one may also fine tune the corresponding speed percentage via the "+" button in the purple block.



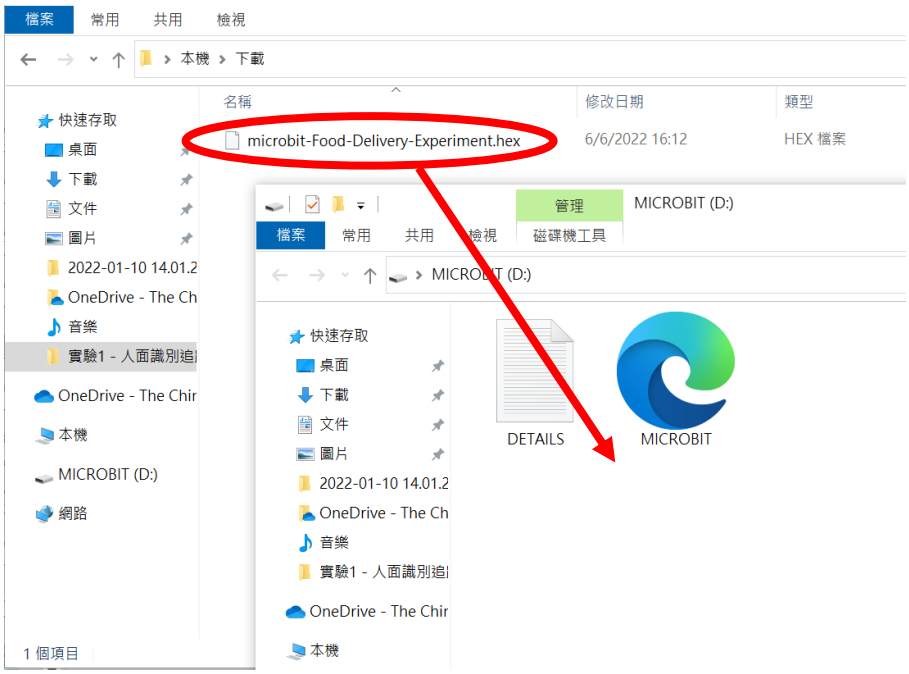
6. After completing the program, click the “Download” button on the bottom-left corner of the webpage.


CUHK-JC iCar HuskyLens
CUHK-JC iCar
CUHK-JC iCar Extension
CUHK-JC iCar Experiments
Extensions
Advanced
on button A pressed
iCar deliver food to
array of
a
b
c
using
Skill-based
reasoning
Download
Food Delivery Experiment

7. Connect the micro:bit to the computer by a micro USB cable.



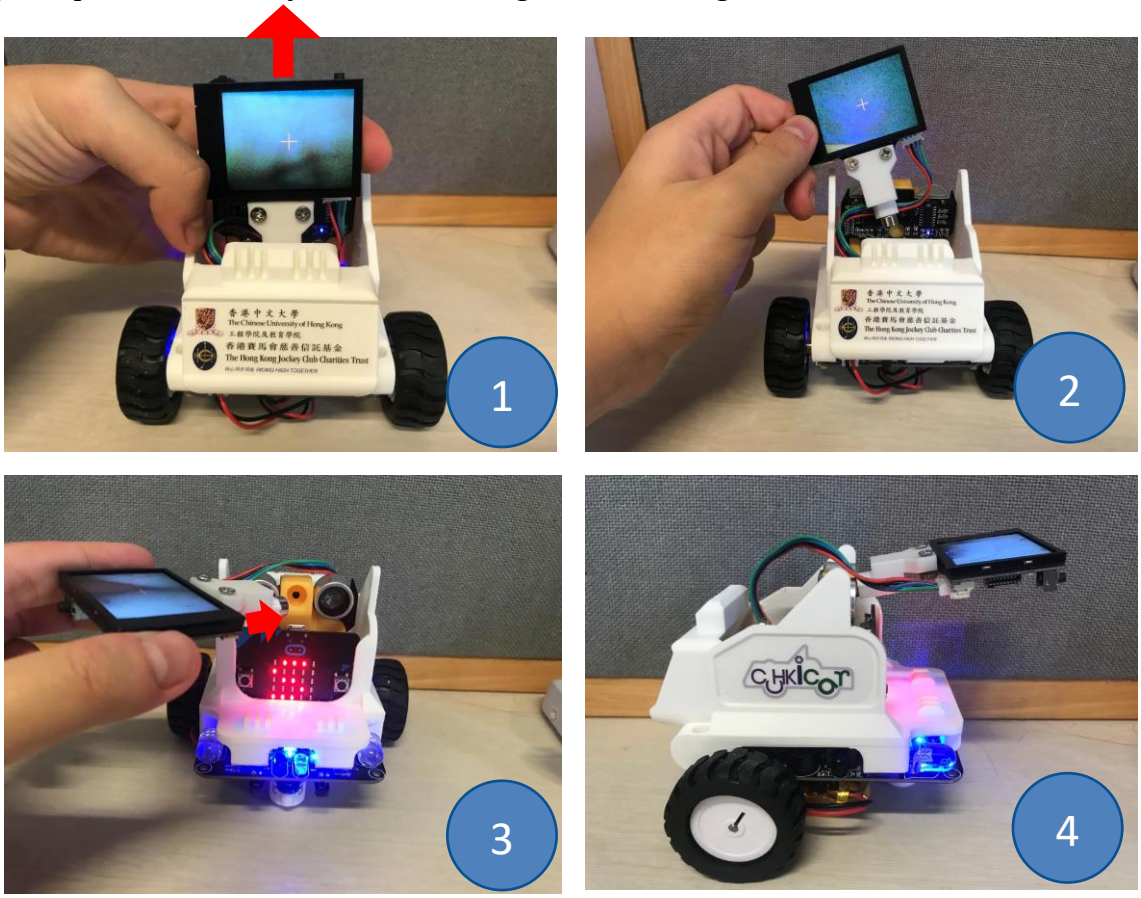
8. Drag the downloaded hex file into the micro:bit window.



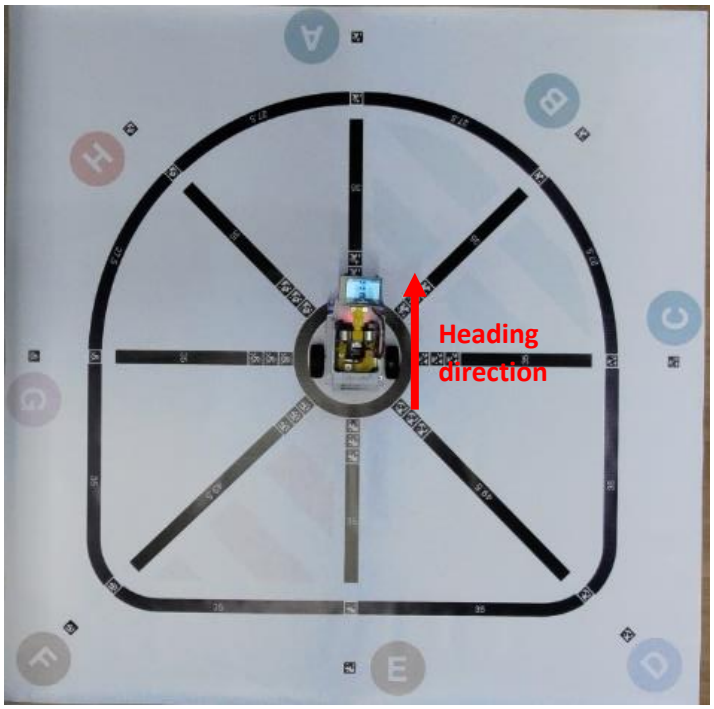
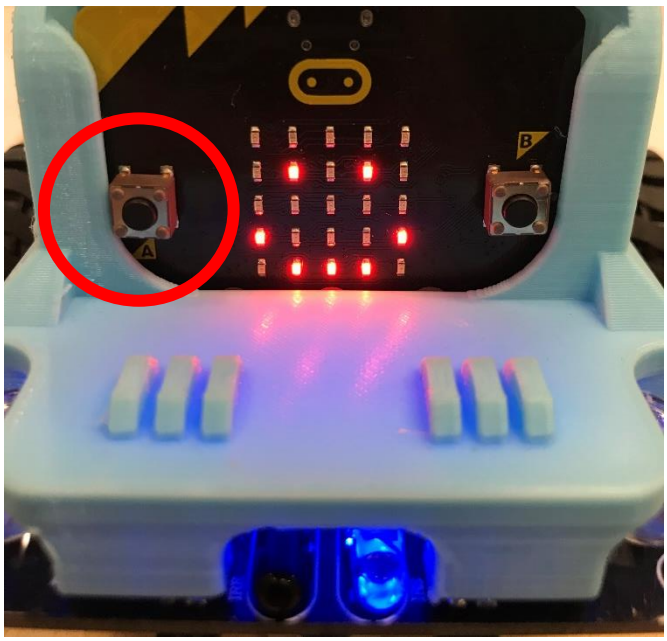
3. Experiment Setup Procedures

1. Switch on the power button at the back of iCar.

2. Change the position of HuskyLens to face the ground as the figure shown below:



3. Put iCar onto the center of map, heading towards Household A.



4. Finally, press A button on micro:bit to start the experiment. The iCar will deliver food to the selected Households according to the chosen levels of reasoning.