香港教育大學
The Education University of Hong Kong

FACULTY OF LIBERAL ARTS AND SOCIAL SCIENCES
博文及社會科學學院

科學與環境學系
Department of Science and Environmental Studies

2023-2024 Quality Education Fund Thematic Network - Tertiary Institutes

# STEAM Education with Self-directed and Progressive Learning of Engineering Design Process for Problem-solving

# 透過STEAM教育自主及循序漸進學習以工程設計流程解難

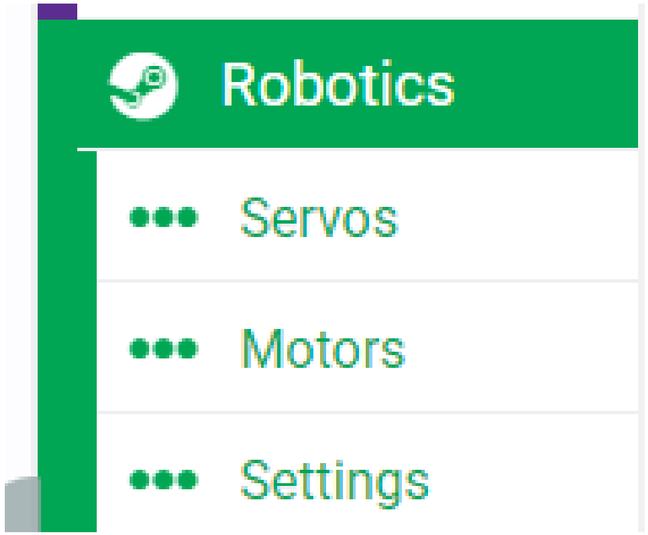
# Amphibious vehicle (水陸兩用車)

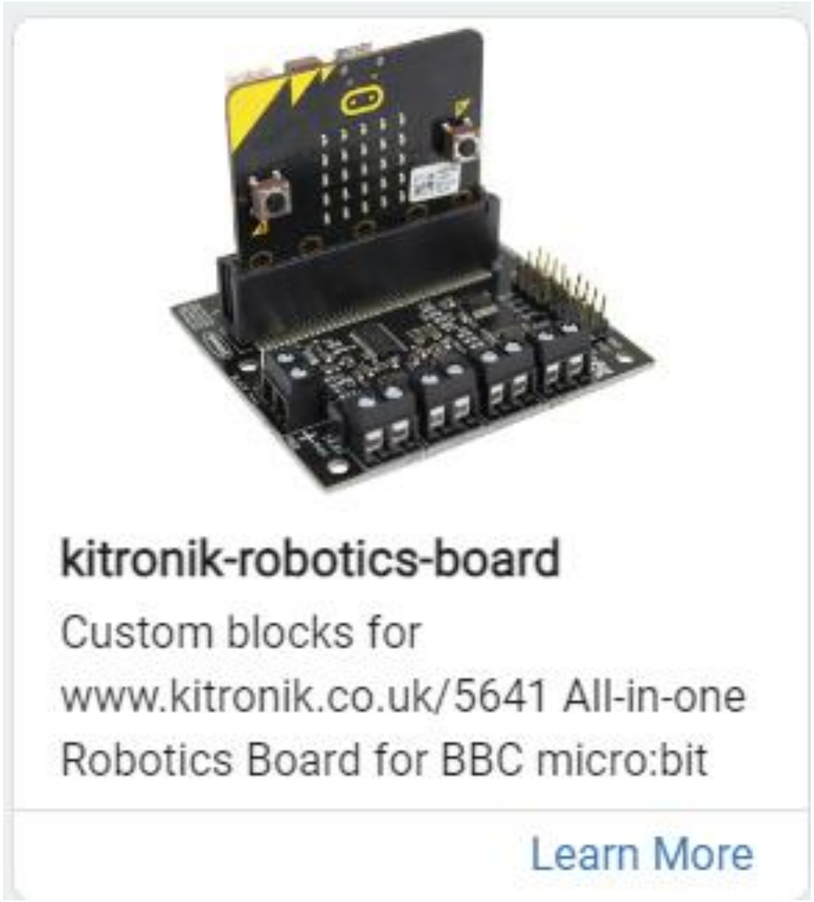
九龍婦女福利會李炳紀念學校

Kowloon Women’s Welfare Club Li Ping Memorial School

# Coding

## 需要Extension



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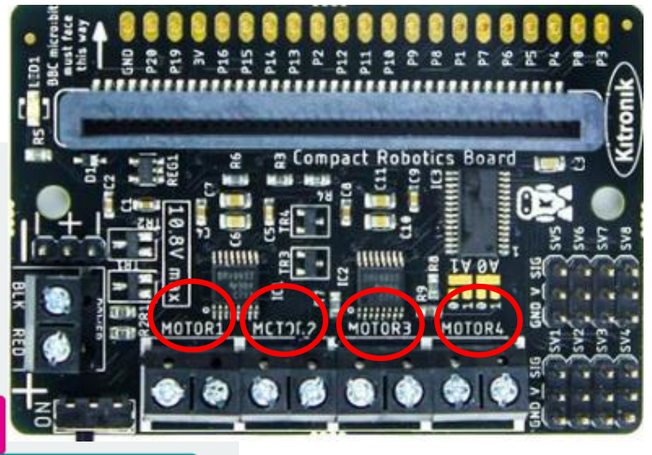
# Coding

## 傳送器

Radio 1: 前進
Radio 0: 停止
Radio L: 水上轉左
Radio R: 水上轉右

```
on start
    radio set group 2

on button A pressed
    radio send number 1

on button B pressed
    radio send number 0

on tilt left
    radio send string "L"

on tilt right
    radio send string "R"
```

## 車子




```
on start
    radio set group 2

on radio received receivedNumber
    if receivedNumber = 0 then
        turn off Motor 1
        turn off Motor 2
        turn off Motor 3
        turn off Motor 4
    else if receivedNumber = 1 then
        Motor 1 on direction Forward speed 100
        Motor 2 on direction Forward speed 100
        Motor 3 on direction Reverse speed 100
        Motor 4 on direction Forward speed 100
```

```
on radio received receivedString
    if receivedString = "R" then
        Motor 1 on direction Forward speed 100
        Motor 2 on direction Forward speed 100
        turn off Motor 3
        turn off Motor 4
    else if receivedString = "L" then
        Motor 4 on direction Forward speed 100
        Motor 2 on direction Forward speed 100
        turn off Motor 1
        turn off Motor 3
```

Motor 1: 左風扇
Motor 2:前風扇
Motor 3:車輪馬達
Motor 4:右風扇

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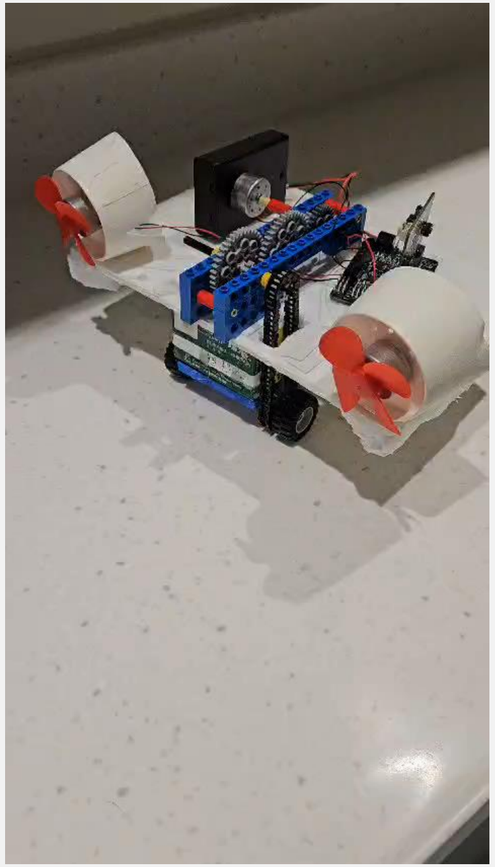
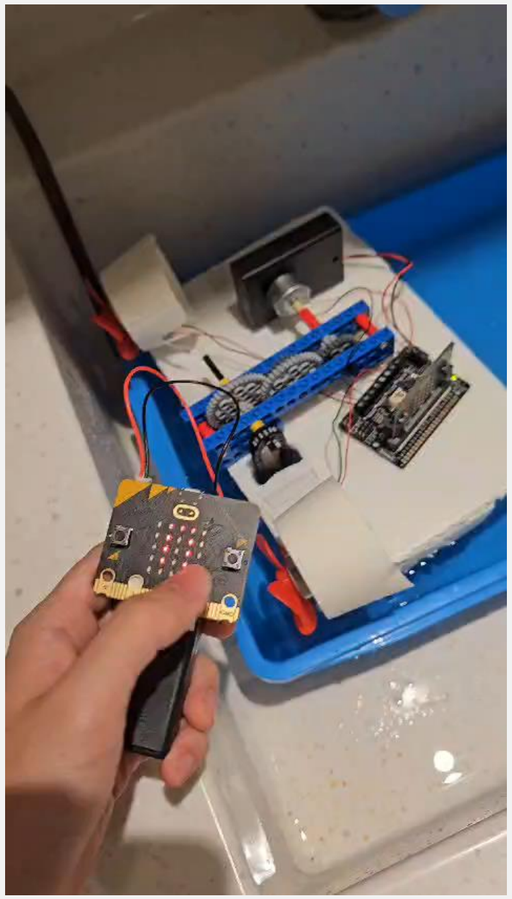
# Testing 1



# Testing 2

# Testing 3



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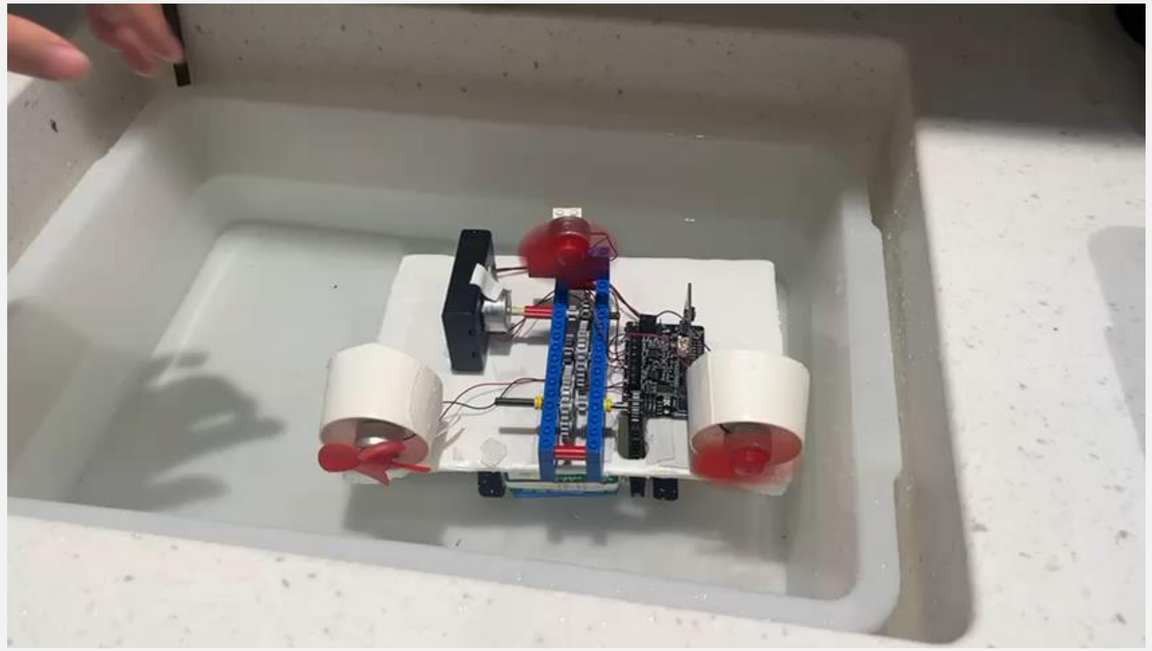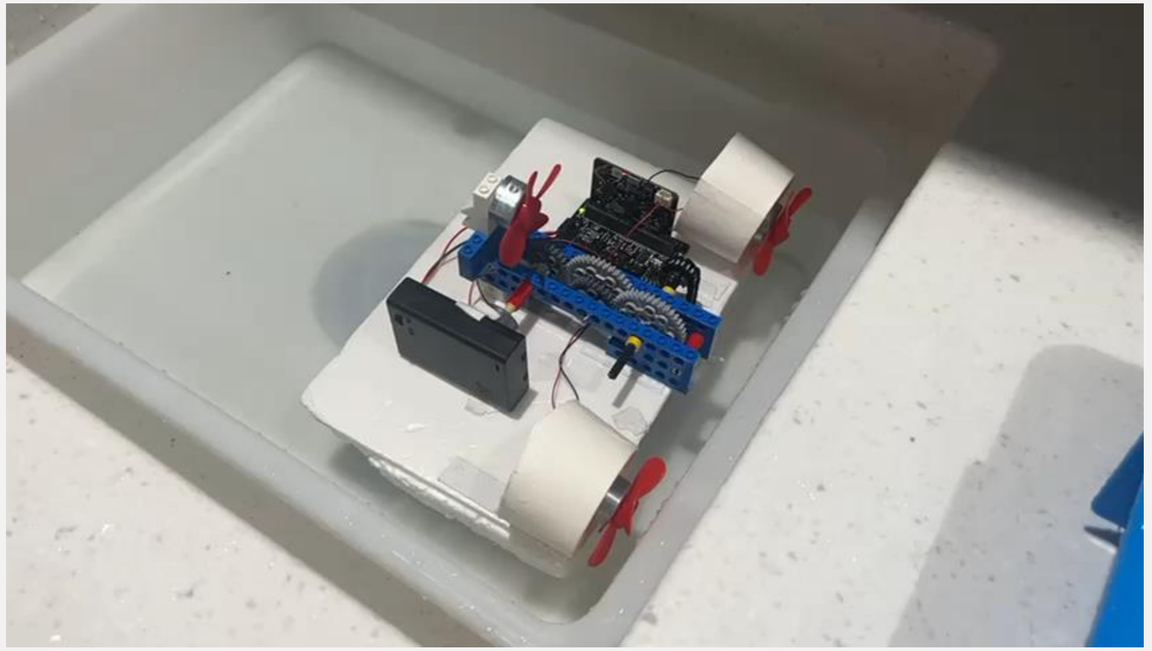
# Testing 4