

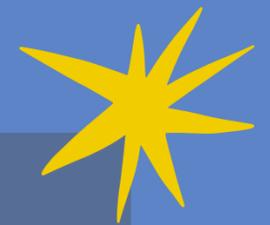
The Education University of Hong Kong

2022-2023 Quality Education Fund Thematic Network - Tertiary Institutes

STEM Project Team

SCHOOL: SAHK B M Kotewall Memorial School

TOPIC: Wheelchairs Astern Sensor



Topic-1

```
forever
  set distance to Ultrasonic distance in unit cm at pin P0
  if distance < 150 then
    show icon [grid icon]
    play melody [melody] at tempo 400 (bpm)
  else
    stop all sounds
    show icon [grid icon]
```

Sonar:bit Sensor:

Combined Sonar:bit and iot:bit to coordinate detect the distance while student is getting closed to the wheelchairs.

Errors:

Time delay;
Distance error

Topic-2

Send: with **RUS-04 Sensor** to detect distance and send the data to the received micro:bit.

```
on start
  radio set group 13

forever
  radio send number On-board Ultrasonic reading distance
  if On-board Ultrasonic reading distance < 100 then
    On-board Ultrasonic part all show color red effect flash
  else
    On-board Ultrasonic part all show color green effect flash
```

Error:
Radio transmission delay for the received number; Setting to be more complicated for student.

```
on start
  radio set group 13
```

```
on radio received receivedNumber
  set built-in speaker OFF
  set audio pin P0
  if receivedNumber < 100 then
    play melody at tempo 400 (bpm)
  else
    stop all sounds
```

Receive: receiving the data from the detect setting and give three types of light for different alarms.

Topic-3

RUS-04 Sensor

```
forever
  if On-board Ultrasonic reading distance < 100 then
    show number On-board Ultrasonic reading distance
    show icon [Cross Symbol]
    play melody [Melody 1] at tempo 400 (bpm)
    On-board Ultrasonic part all show color red effect flash
  else if On-board Ultrasonic reading distance > 200 then
    show icon [Cross Symbol]
    stop all sounds
    On-board Ultrasonic part all show color green effect flash
  else
    show icon [Cross Symbol]
    play melody [Melody 2] at tempo 400 (bpm)
    On-board Ultrasonic part all show color indigo effect flash
```

Very closed distance alarm

Safe distance alarm

Closed distance alarm

Light and sound alarm
for three distances with
the cross symbol or
tick symbol.



Photo of Topic-3

