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 **Robert-MARKII** Gravity IoT Starter Kit for Micro:bit
461d66e on 19 Feb 2019

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Gravity IoT Starter Kit for micro:bit | Quickstart Guide |



MEET OBLOQ

What is OBLOQ ?

OBLOQ is an extension module that allows micro:bit to connect to a Wi-Fi network. With MakeCode block editor, even a beginner can setup the connection to then send and receive data via EasyIoT platform.

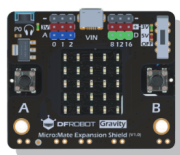
Electronic Device Micro:bit OBLOQ Module Internet

GET READY!

To start your first IoT project, you will need the following things



OBLOQ Module



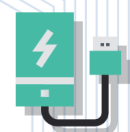
micro:bit + Micro:Mate expansion shield



Gravity Module



A Computer with USB port and internet connection.



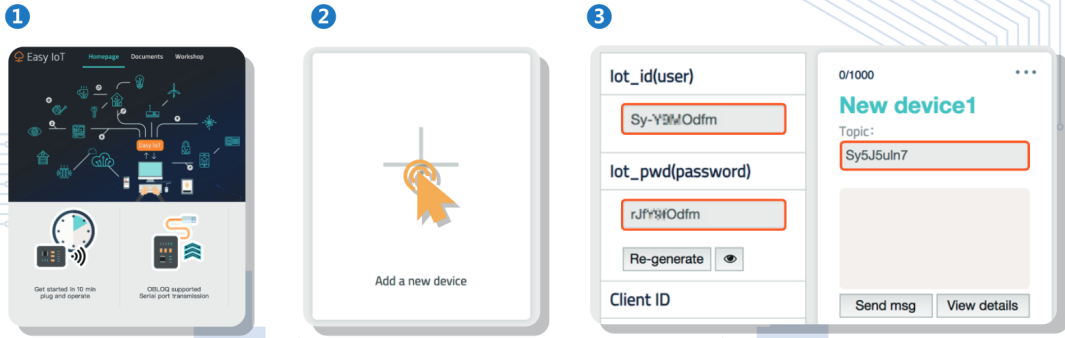
USB power bank as external power supply (optional)

Now, we will walk you through the process to setup connection between a micro:bit and a web browser

on your smart device.

SIGN IN EASYIOT

Register your device on EasyIoT dashboard



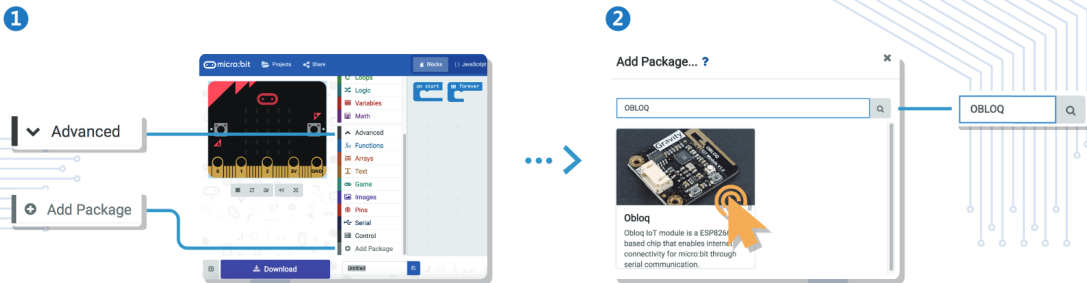
Visit <http://iot.dfrobot.com/>, create an account and login.

Go to "workshop" and add a new device.

Take down "lot_id", "lot_pwd" and "topic" for future steps.

OPEN MAKECODE EDITOR

Add OBLOQ module to the block list



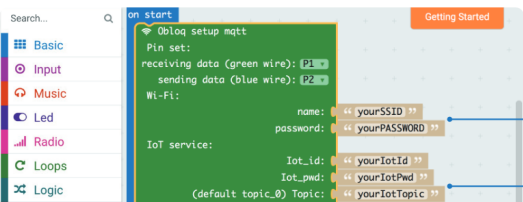
Visit makecode.microbit.org/v0 to open the online block editor. Click "Add Package" under "Advanced".

Search for "OBLOQ" and add it to the block list.

START PROGRAMMING

Configure network connection

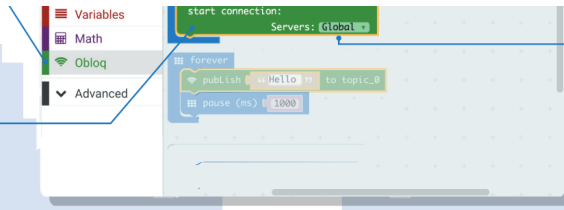
Click "Obloq" to expand the block list



Fill in Wi-Fi name and password

Fill in lot_id, lot_pwd and topic code

2 Drag "Obloq setup mqtt" into the "on start" loop.



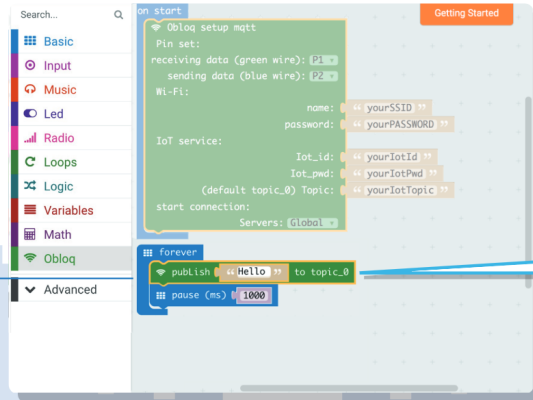
Select "Global" server 5

SAY HELLO TO EASYIOT

Send message "Hello" to EasyIoT in every 1 second.



The "publish" block sends out a message "Hello" to devices registered at topic_0. Meanwhile, it will be displayed and recorded on EasyIoT platform.



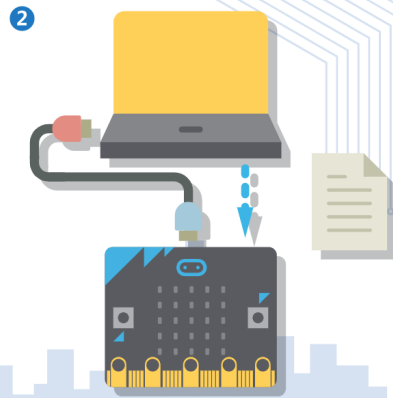
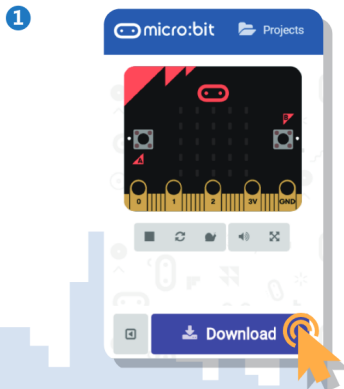
Latest news

| Time | Message |
|-------------------|---------|
| 2018/12/7 17:7:17 | Hello |
| 2018/12/7 17:7:16 | Hello |
| 2018/12/7 17:7:15 | Hello |
| 2018/12/7 17:7:14 | Hello |
| 2018/12/7 17:7:13 | Hello |

The message "Hello" will eventually show up on EasyIoT dash board for every 1 second.

BURN CODE

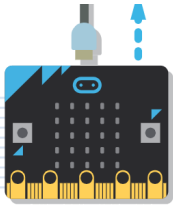
Connect micro:bit to your computer and move the .hex file to MICROBIT drive



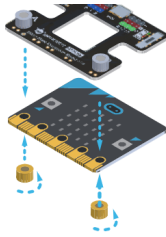
WIRE UP

Connect the circuit and switch on power

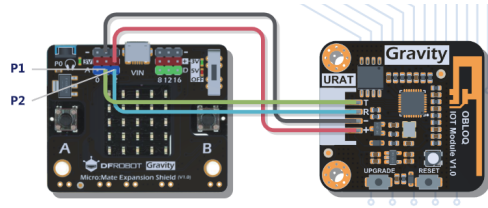




To prevent short circuit, unplug the USB cable from micro:bit

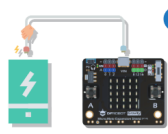


Install Micro:Mate expansion board onto micro:bit (make sure the screws are securely tightened)

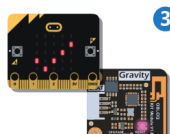


Connect the circuit
Power cable (red) — Red pin
Ground cable (black) — Black pin
TX (Green) — P1 pin
RX (Blue) — P2 pin

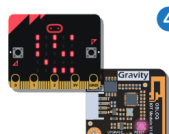
START CONNECTION



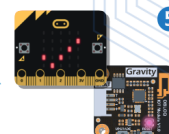
1. Connect the USB cable to the Micro:Mate expansion board, internet connection will start automatically.



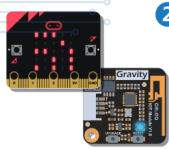
3. Wi-Fi connected



4. Connecting EasyIoT



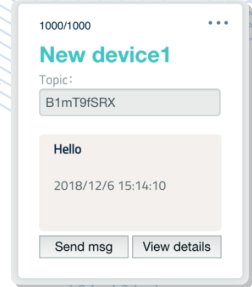
5. EasyIoT connected



Connecting Wi-Fi

Connection Problem Diagnosis

1. Check your Wi-Fi name and password.
2. Make sure the wires are correctly and securely connected.
3. Power up the device from the MicroUSB port of the Micro:Mate expansion board.

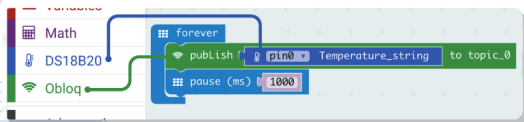


When successfully connected, the message "Hello" will show up on the EasyIoT dash board.

MORE APPLICATIONS

Sample 1: Publish temperature data to EasyIoT

• Program

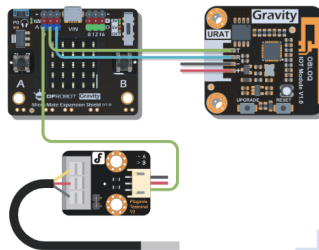


Add Package... ?

github.com/DFRobot/pxt-ds18b20

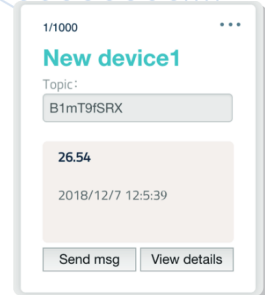
Note: to use water-proof temperature sensor, you will need to add following package to MakeCode Editor. github.com/DFRobot/pxt-ds18b20

• Wiring Diagram



Power cable (red) — Red pin
Ground cable (black) — Black pin
TX (Green) — P1 pin
RX (Blue) — P2 pin

• Result



Temperature data will be updated to EasyIoT in every second.

MORE APPLICATIONS

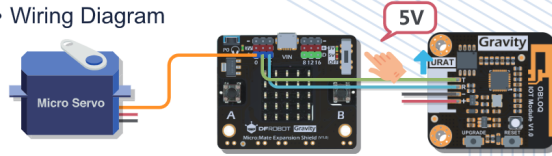
Sample 2: Control a servo via EasyIoT

• Program

```

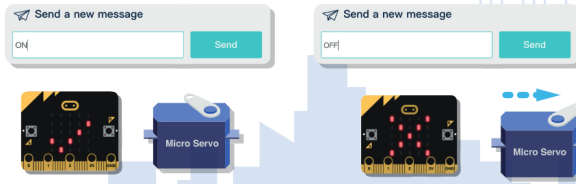
on topic_0 received message
  if (message == "ON")
    then
      show icon [ON]
      servo write pin P8 (write only) to 0
    else if (message == "OFF")
      then
        show icon [OFF]
        servo write pin P8 (write only) to 90
  
```

• Wiring Diagram



Note: Servo only works under 5V. Put the switch on middle to set P8, P12, P16 to 5V (LED turns red)

• Result



Control the servo by sending "ON" and "OFF" from EasyIoT



We are all set!

Now, add more Gravity modules to your project to bring IoT into your real life.

To learn more about this kit and Gravity series modules, go to DFRobot.com and search for their name or SKU number.

