

## CD-Soft Watering Kit for the BBC micro:bit



### Description

Create and code your own watering kit powered by the BBC micro:bit v2.

## Included

The CD-Soft Watering Kit includes all the components you need to automate your plant watering.

- 1x Prong Soil Moisture Sensor
- 1x Relay Board
- 1x Submersible Water Pump - Horizontal DC 3V-5V
- 1x Battery Cage with JST Connector & Switch (2xAAA)
- 1x Alligator Clips & Lead - 5 Pack (Heavy Duty)
- 2x AAA Batteries



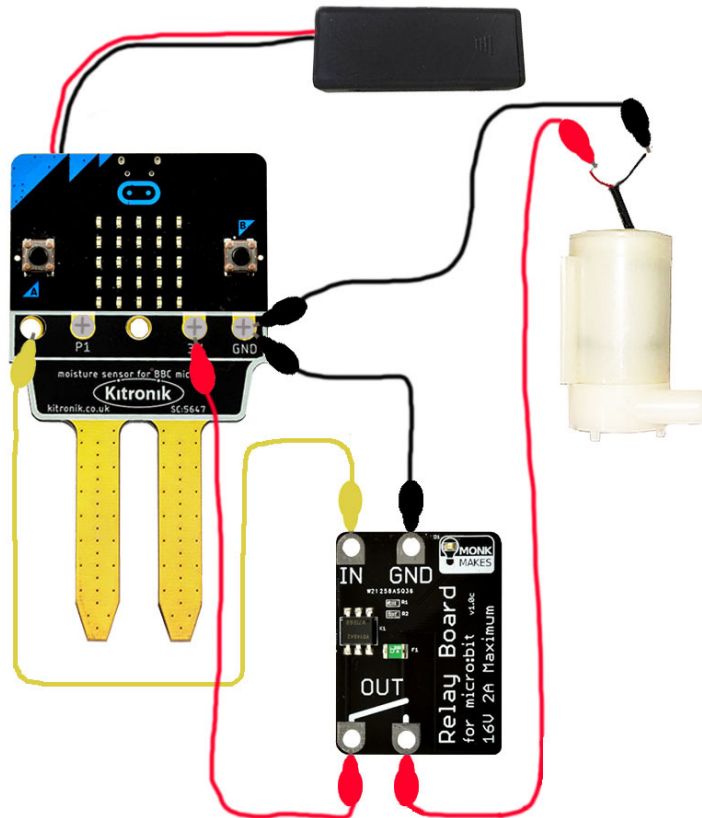
## Useful Information

To determine the moisture level, the signal is brought out to Pin 1 on the BBC micro:bit as an analogue voltage. The voltage will range between 0V (dry) and 3V (wet).

To test the delay between reads and the level of dampness we recommend using a damp cloth and holding it on the prongs.

## Wiring Diagram

- Connect an Alligator Clip from P0 on the BBC micro:bit to IN on the Relay Board
- Connect an Alligator Clip from 3V on the BBC micro:bit to 1st OUT on the Relay Board
- Connect an Alligator Clip from GND on the BBC micro:bit to GND on the Relay Board
- Connect an Alligator Clip from GND on the BBC micro:bit to the (-) black wire on the Water Pump
- Connect an Alligator Clip from 2nd OUT on the Relay Board to the (+) red wire on the Water Pump



## Coding with Makecode

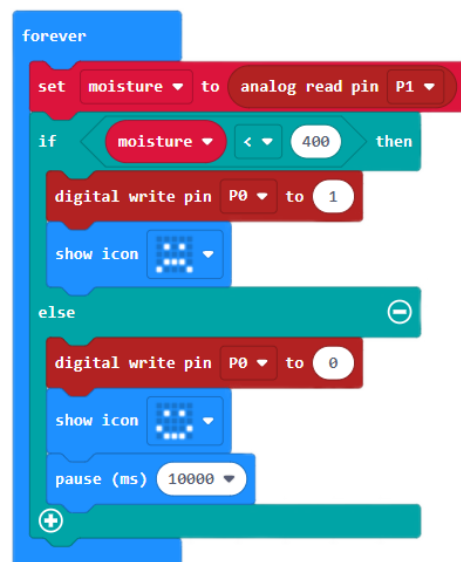
Create a .HEX file using the following code and upload it to the BBC micro:bit.

This code will light up your BBC micro:bit with a sad face and start the pump when it needs to be watered. It will show a happy face if/when the soil is moist enough and the pump will stop.

You can customize the icons shown by editing the “show icon” sections of code.

The first is for when it needs to be watered and the second is for when it is moist enough.

The “pause” code can be adjusted to set how much time goes past between reads.



## Coding with Python

Find a BBC micro:bit compatible python editor. In this example we will be using the Mu editor. Create the code and flash or load it to your micro:bit.

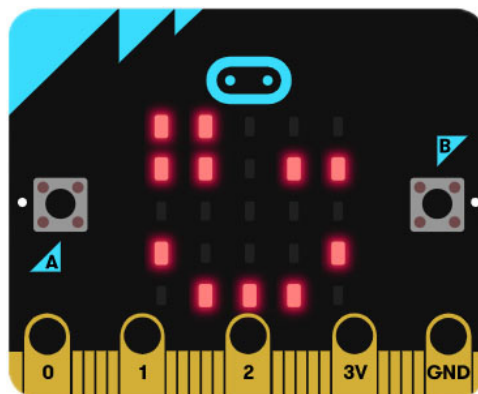
This code will light up your BBC micro:bit with a sad face and start the pump when it needs to be watered. It will show a happy face if/when the soil is moist enough and the pump will stop.

You can change the icons shown by editing the “display.show(Image.HAPPY/SAD)” sections of code.

The first is for when it needs to be watered and the second is for when it is moist enough.

The “sleep” code can be adjusted to set how much time goes past between reads.

```
1 from microbit import *
2
3 while True:
4     moisture = pin1.read_analog()
5     if moisture > 400:
6         pin0.write_digital(0)
7         display.show(Image.HAPPY)
8         sleep(10000)
9     else:
10        pin0.write_digital(1)
11        display.show(Image.SAD)
```



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