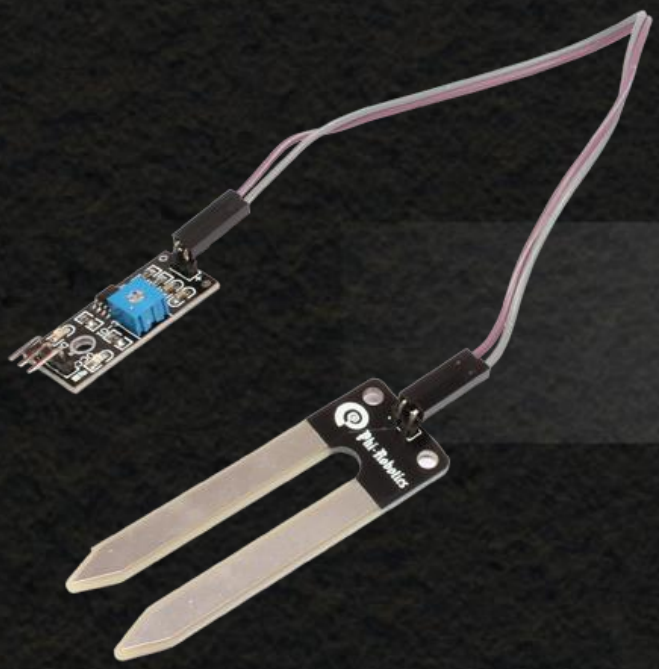
Phi Robotics

Product Manual



Soil Moisture Sensor

Version 1.0

Phi Robotics Research Pvt. Ltd.

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1 Introduction

Soil moisture sensor measure the water content in soil. Measuring soil moisture is important in agriculture to help farmers manage their irrigation systems more efficiently. Not only are farmers able to generally use less water to grow a crop, but they are also able to increase yields and the quality of the crop by better management of soil moisture during critical plant growth stages.

Besides agriculture, there are many other disciplines using soil moisture sensors. Golf courses are now using sensors to increase the efficiencies of their irrigation systems to prevent over watering and leaching of fertilizers and other chemicals offsite.

The module uses LM393 comparator to compare the soil moisture level with the preset threshold. When the soil moisture deficit module outputs a high level, and vice versa.

2 Features

- 2 state binary output
- Adjustable sensitivity

3 Specifications

- Input operating voltage: 3.3 to 5V

4 Hardware Connection

The sensor have 3-Pin male header. The pins are as follows VCC (external 3.3V-5V) GND (external GND) and DO-board digital output interface (0 and 1). The pin explanation for each pin is shown below.

Figure 1 - Soil moisture sensor pin layout

5 Pseudo Code

```
boolean getSoilMoistureStatus(void)
{
      // read DO pin status
      if(gpioReadPin(DO) == 1)
            return true;      // soil moisture level above threshold
      else
            return false;     // soil moisture level below threshold
}
```

6 Reference

LM393 Datasheet: http://www.ti.com/lit/ds/symlink/lm393-n.pdf

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