

1. What is GrovePi+?

GrovePi is a system that brings grove sensors to the Raspberry pi.

2. How does the Rasperry Pi communicate with the GrovePi+?

The Raspberry Pi and the GrovePi communicate only through I2C.

3. What microcontroller does the GrovePi+ use?

ATmega328. The GrovePi runs an ATmega328 which contains an on-board 6 channel analog-to-digital (A/D) converter. The AD converter has 10-bit resolution, returning values 0-1023.

4. What type of ports does the GrovePi+ has?

I2c, Digital ports, Analog ports, Raspberry Pi Serial port, GrovePi Serial and Digital Port (Accessible from the Raspberry Pi by sending commands to the GrovePi).

5. Which GrovePi+ sockets support PWM?

GrovePi sockets D3,D5,D6 also support Pulse Width Modulation (PWM) which means you can write 8-bit values 0-255 with analogWrite().

6. In what language can you program the GrovePi+?

Scratch, Python, Node JS, Go, C, C#

7. Read the Python library's documentation for the GrovePi+ and then describe the type of functions that it has.

The Python library for grovepi has three types of functions:

- *Basic Arduino Functions:*
In these functions are used to read specific values, write values in a digital pin, or configured specified pins.
- *Grove Specific Functions:*
It reads different parameters like distance, temperature, time, and values from different components.
- *Private Functions for Communication:*
It works for the I2C interface, and it is used to read or write data of the I2C device. Also, to read a byte of data using this interface.

8. List and describe at least 5 Grove Sensors that you like. Explain how each sensor communicates with the GrovePi+.

LED: it communicates by digital port. On 0 is off and on 1 is on and it is turned on by a digital signal.

BUZZER: it communicates by digital port. It consists of a component that makes a sound while receiving a digital signal.

RGB LCD Display: it is connected by the I2C port, it works as an output and it displays a message written by a instruction from the Arduino functions if using python.

Button: it communicates by a digital port and it receives a signal, in 1 is pressed and is considered as HIGH Position and on 0 it is not pressed so it is LOW.

Temperature sensor: it is an analog input that is used to measure temperature in a place.

Bibliography:

<https://www.dexterindustries.com/GrovePi/programming/python-library-documentation/#1>