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A GPIO or General-purpose input/output is a port that handles obviously the input and output. On a hardware level this is usually a on or off, or 1 or 0. This port communicates with the CPU when it receives signals from the sensors or other devices on the motherboard. This port is also controllable at run time which is not like some other methods of communicating in hardware. GPIO’s are usually next to the CPU and more than likely have their own dedicate pin for each GPIO. These are usually used for hardware things like giving power to the board or to read the state of a fan or something similar. For example, you could set an two GPIO to only read signal from the power supply and if both sensors are on then turn on the board.

A PWM or pulse width modulation (some say pulse-duration modulation) is a method of reducing the power signal to a part. Digital signal is on or off, but analog signals can be a little different. For example, they can be on, off, half-way, two-thirds and so on all the way to infinity due to modern math. Therefore, sometimes we need to convert analog signal into digital and by versa. This is the main purpose of the PWM. A dimmable light is a great way to show the greatness of PWM. If a light needs to dim to 50 percent this seems like it would be an analog signal of halfway. However we can also send jolted signals very quickly to keep the power at 50 percent for the light, which is pretty awesome invention.

Finally we have UART or Universal asynchronous receiver-transmitter. In UART communication we usually have two UART’s communicating with each other. This happens by converting the data into serial form and then sending it to the other UART. The data transmitted it also asynchronous(hence the name). Which means there is no clock signal between the data. UART is mainly used for hardware communication.