Fan control

Of course, letting the ping-pong ball float in the tube starts with controlling the fan. In this document , 2 simple ways are briefly discussed. For this we will apply signals directly to the connector (4 lines) of the fan. Use the extra PCB with banana plugs for this!

Analog voltage

The first way to control the fan is by applying an analog voltage. The higher the voltage, the faster the fan will spin.

This voltage can easily be applied with an adjustable voltage source from the lab. The black wire of the fan is ground, the red wire is for the power supply.

Always apply the analog voltage via the extra PCB, it provides overvoltage and reverse voltage protection!

Note: the maximum voltage for this fan is 12V!
This can also be found in the datasheet with the **files.** **(https://canvas.vub.be/courses/20138/files/folder/datasheets?preview=112713)**

Block golf

Instead of varying the voltage, the speed can also be controlled with a digital signal. This digital signal is a Pulse Width Modulator (PWM), which will later be generated by the micro controller (more information about this can be found at **Controlling the fan with a digital PWM signal** **(https://canvas.vub.be/courses/20138/pages/aansturen-ventilator-met-digitaal-pwm-signaal?wrap=1)** . For now you can simulate this signal by applying a square wave. square wave can be applied to the brown wire, with a voltage between 0 and 3.3 V. You can easily generate this signal with a function generator from the lab. The supply voltage can now simply remain at 12 V.

You can also find this information yourself in the **datasheet (https://canvas.vub.be/courses/20138/files/folder/datasheets?preview=112713)** .

Conclusion

You are now able to control the speed of the fan and thus change the height of the ball. In order to regulate this accurately, however, we will have to measure the height of the ball and use this to control the fan more or less. In this way we will build a controller that provides feedback. In the following technical manual you will learn everything about the height sensor.