Sharp 2Y0A21 proximity sensor

Transistor BD537/BD539

Fan motor

Adjustable power supply

Top power rail is supplied with 5V DC from Arduino Uno. Bottom power rail is supplied with 12V DC from external power upply.

Note how all GND are connected, which is crucial to making the circuit work.

RC-Filter (first-order low-pass filter)
time constant: tau = R * C
cutoff frequency: omega = 1/RC

fritzing