**DC motor controller using Attiny45**

# Requirements

|  |  |  |
| --- | --- | --- |
| Function | Parameter | Description |
| OVLO | Vin\_MAX = 18V | Shuts down operation of MOSFET Driver when Vin\_MAX is exceeded. |
| UVLO | Vin\_min = 11V | Shuts down operation of MOSFET Driver when less then Vin\_min. |
| Single or Dual supply | - | The driver and load can use the same single supply, but if the supply isn’t between Vin\_min and Vin\_MAX, the control circuit can use a different supply. |
| Max output current | 12.5A or 25A | The driver can function with one or two power MOSFET-s, depending on the required current. |
| Max output voltage | 30V | In this case two separate power supplies are needed. |
| Reverse current protection | - | Protects the circuit if the power supply of the control circuit is wired incorrectly. |
| Back EMF protection | - | DC Motor reverse EMF protection. |
| Error signaling LED | - | Red LED blinking when the MOSFET Driver is shut off by the uC. In case a problem has emerged (OVLO, UVLO, Over current, temperature). |

# Hardware architecture requirements

|  |  |  |
| --- | --- | --- |
| Function | Description | pin |
| Analog input | Measures the output current, for protection purposes. | PB3-PB4 |
| Analog input | Measures the input voltage, for protection purposes. | PB2 |
| PWM output | PWM output for the MOSFET Driver. | PB1 |
| PWM output | For the ERROR LED. | PB0 |

# Programming the Attiny

-Upload the ArduinoISP sketch to the UNO!

-Use “Arduino as ISP” not “ArduinoISP” !

-Use 8Mhz

-Firstly burn the bootloader, then upload (burning the bootloader is required only once )

