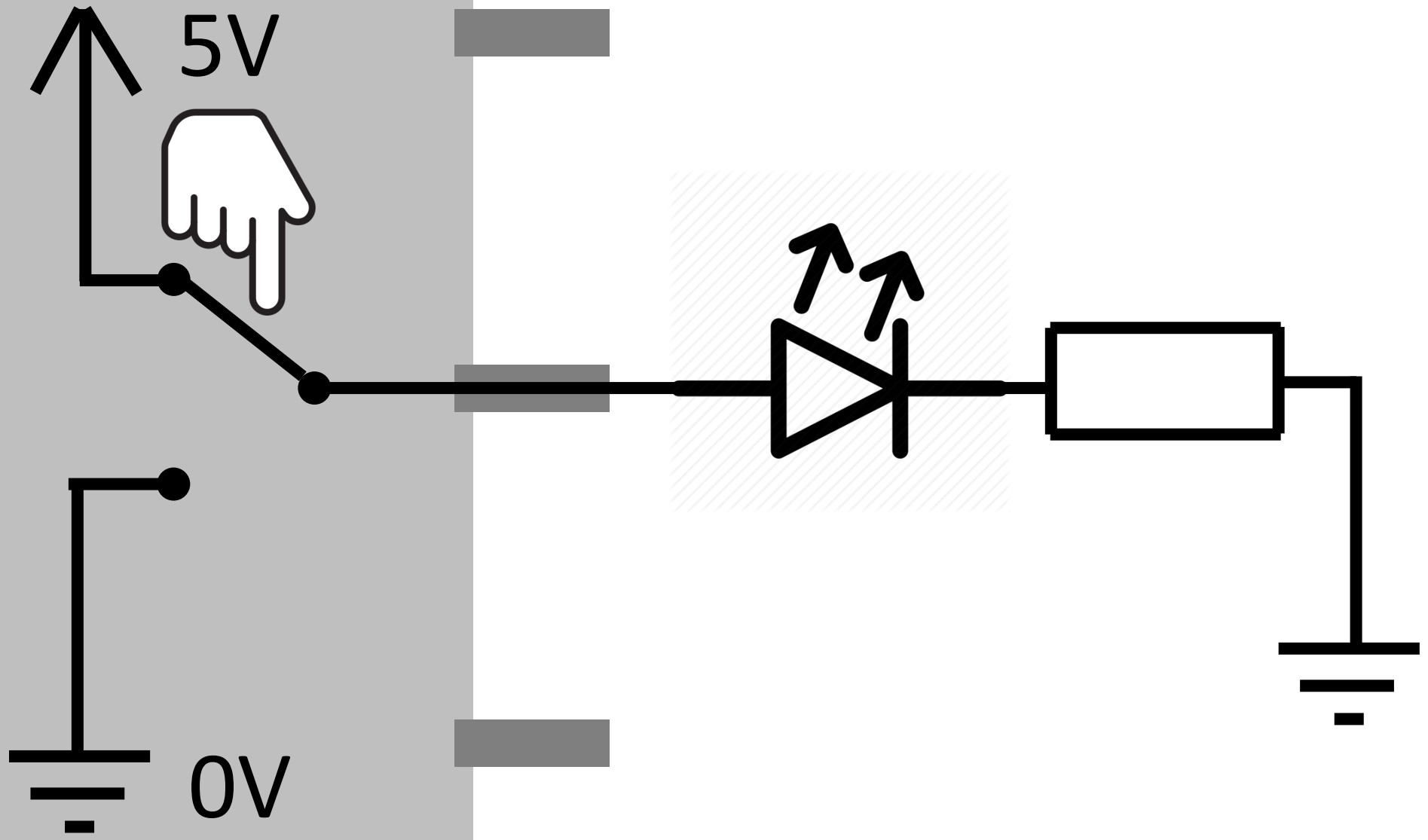
# Electro workshop 3
# https://x.valky.eu/elec3

Ing. Gabriel Valky, PhD.

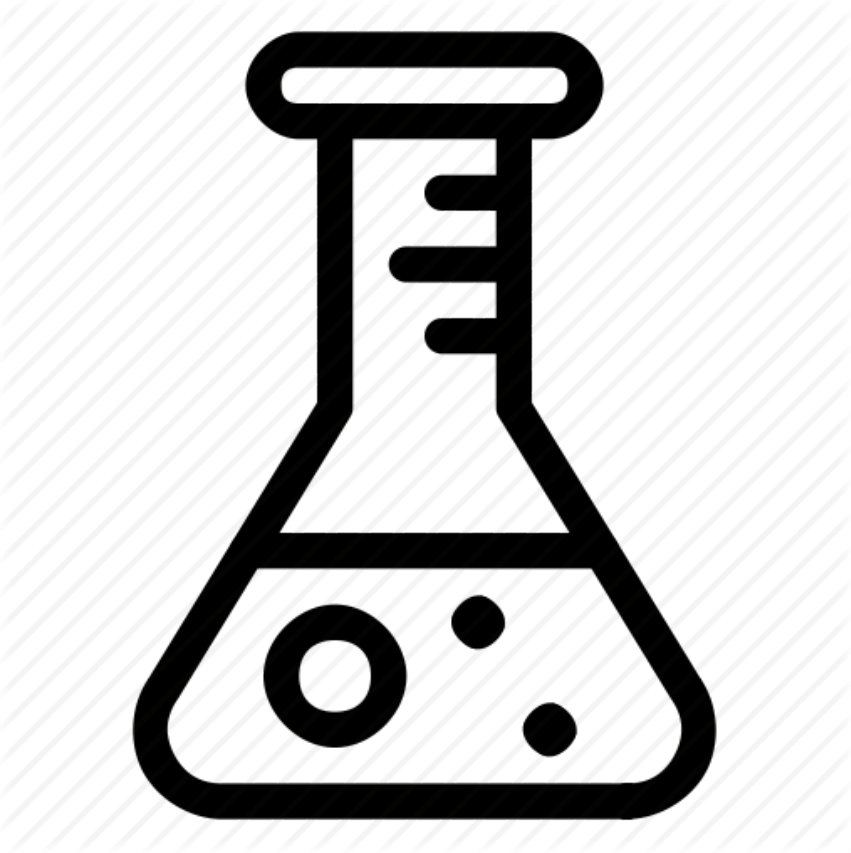
ATMEGA328P

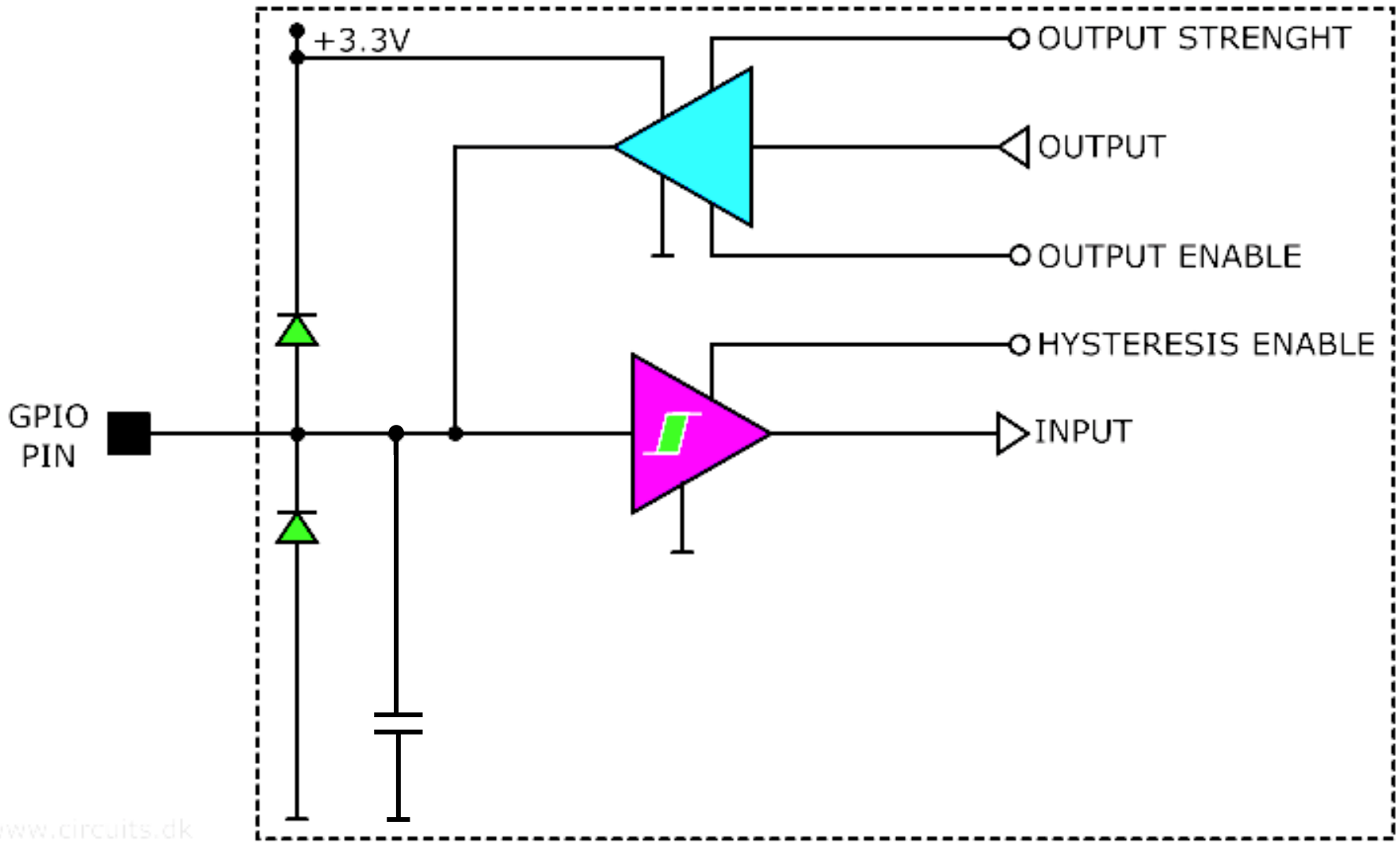


ATMEGA328P

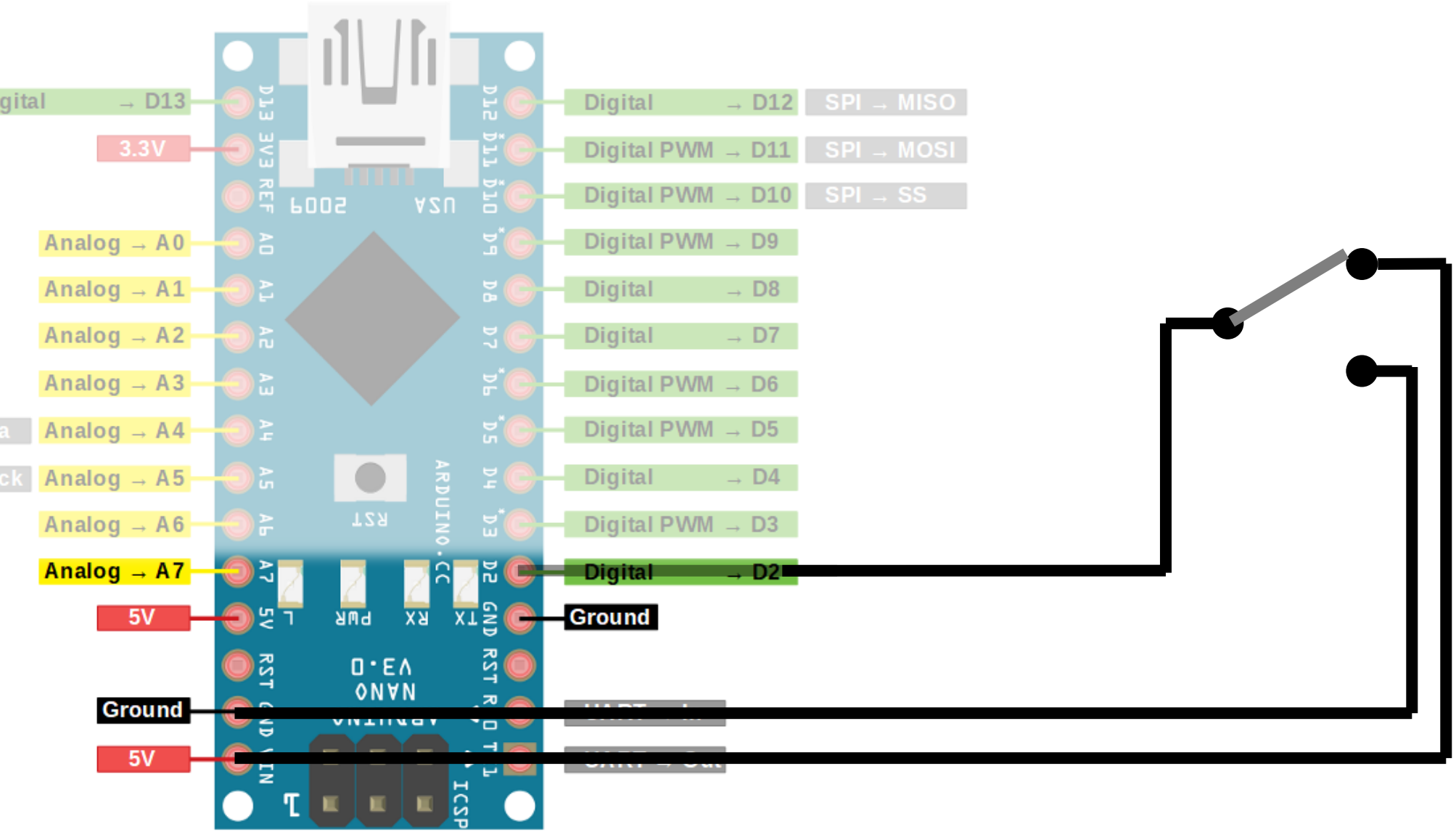
ATMEGA328P

# Experiment – vstupna impedancia




+3.3V
OUTPUT STRENGHT
OUTPUT
OUTPUT ENABLE
HYSTERESIS ENABLE
INPUT
GPIO
PIN
www.circuits.dk

# Letujeme




Source: Fritzing

# Uloha 0:

File -> Examples -> 01. Basics -> Blink

Tools -> Board -> Arduino Nano

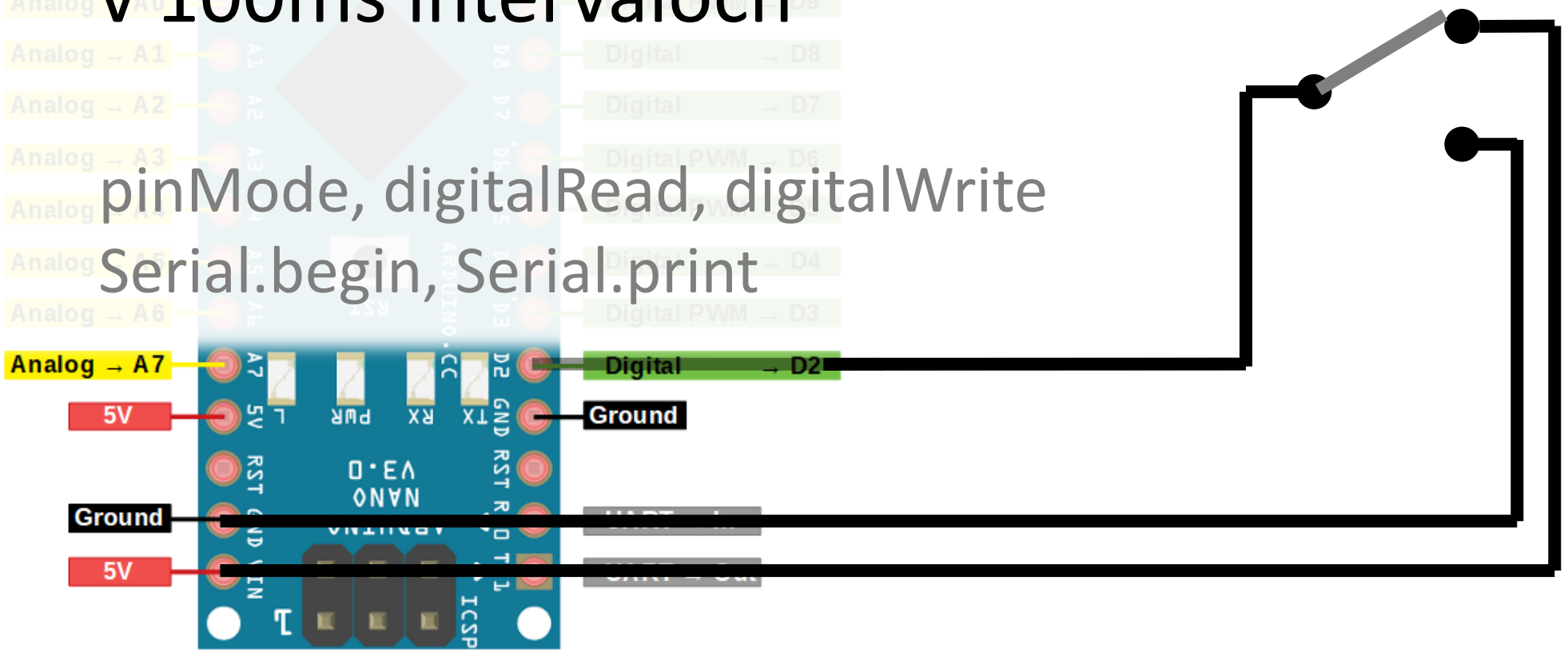
Tools -> Processor -> Atmega 328P (Old bootloader)

Source: Fritzing

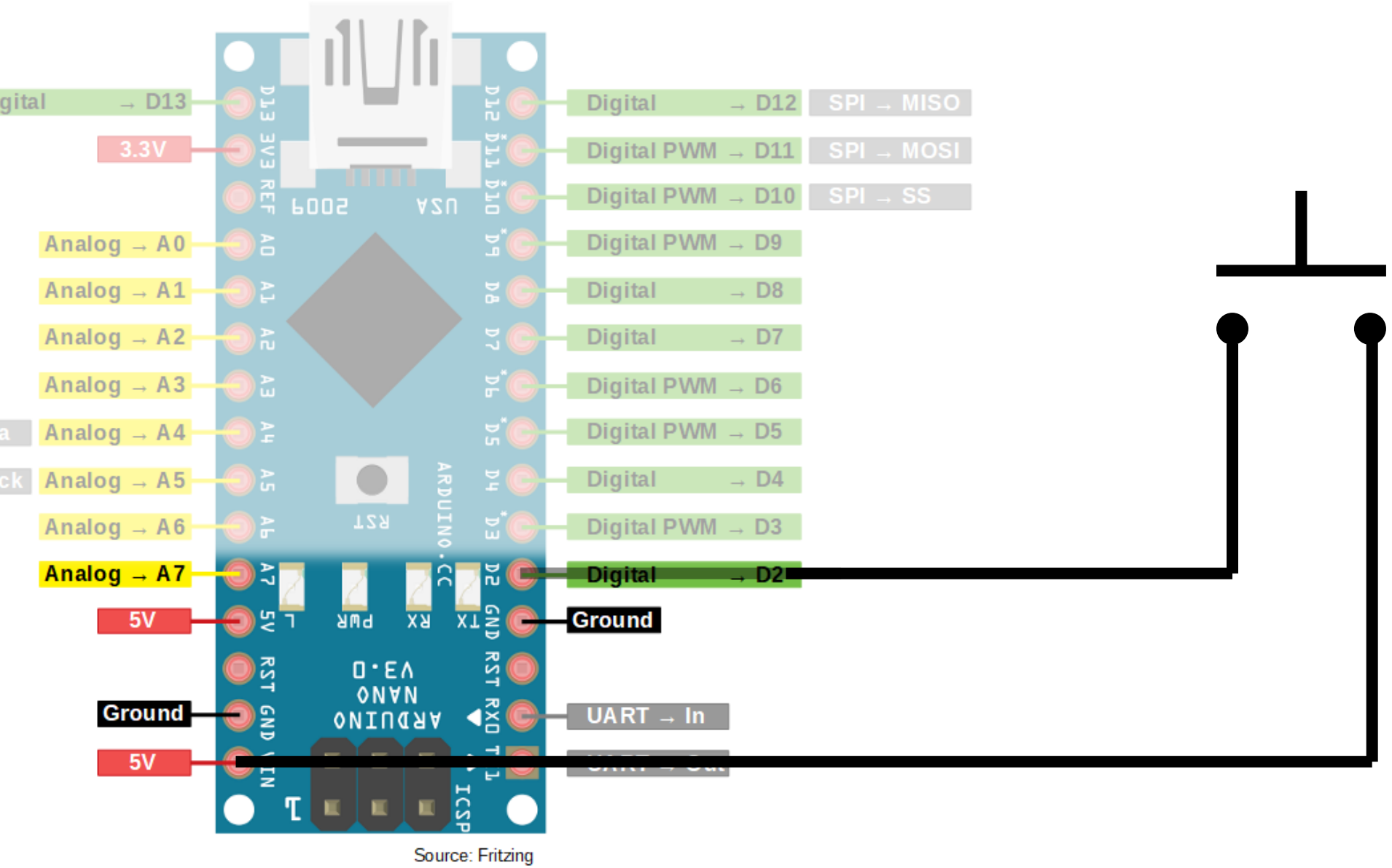
# Uloha 1: Rozsviet internu LED podla podla logickeho stavu na vstupnom pine D2

# Uloha 2: Vypisuj hodnotu logickeho stavu pinu D2 v 100ms intervaloch

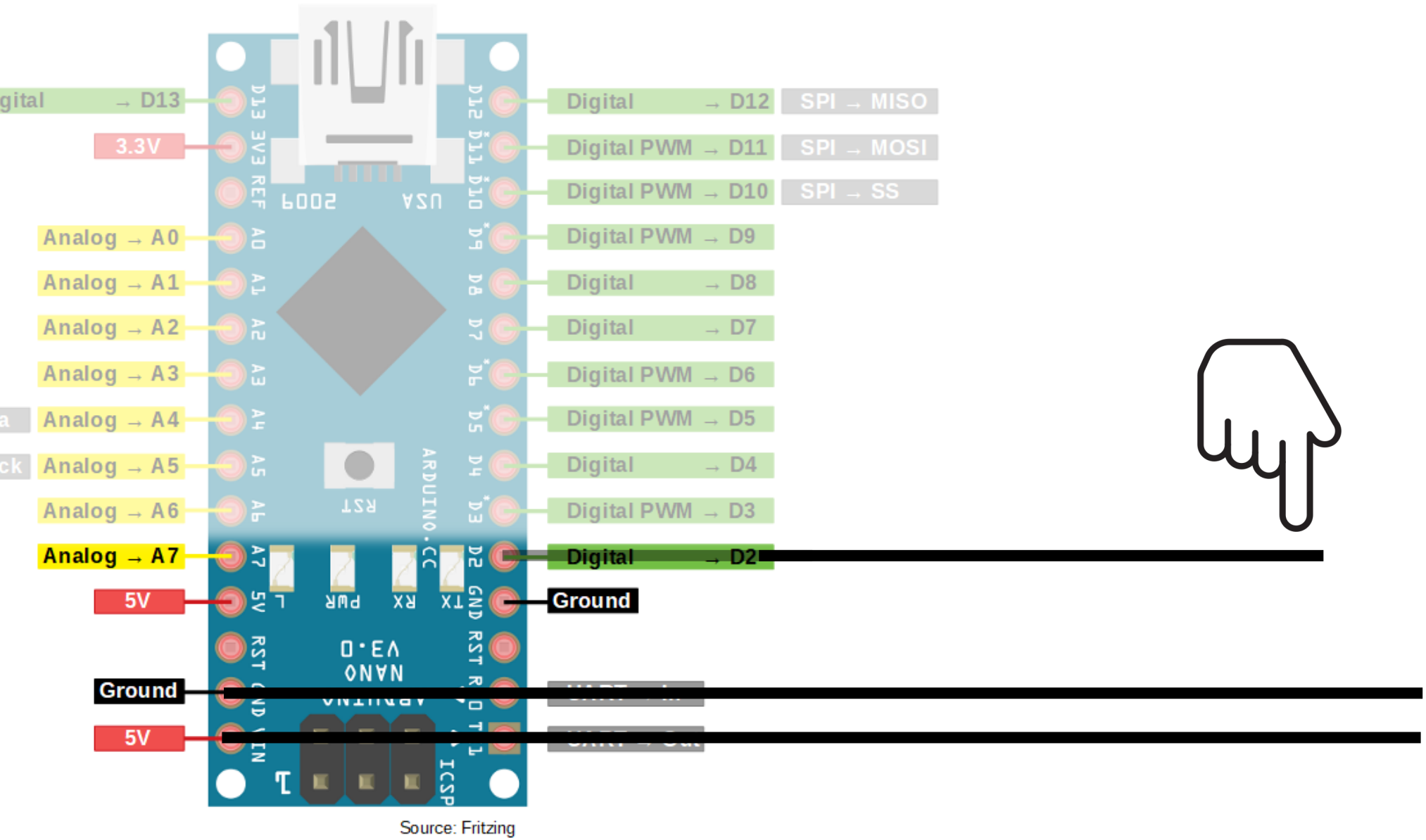
pinMode, digitalRead, digitalWrite
Serial.begin, Serial.print




Source: Fritzing

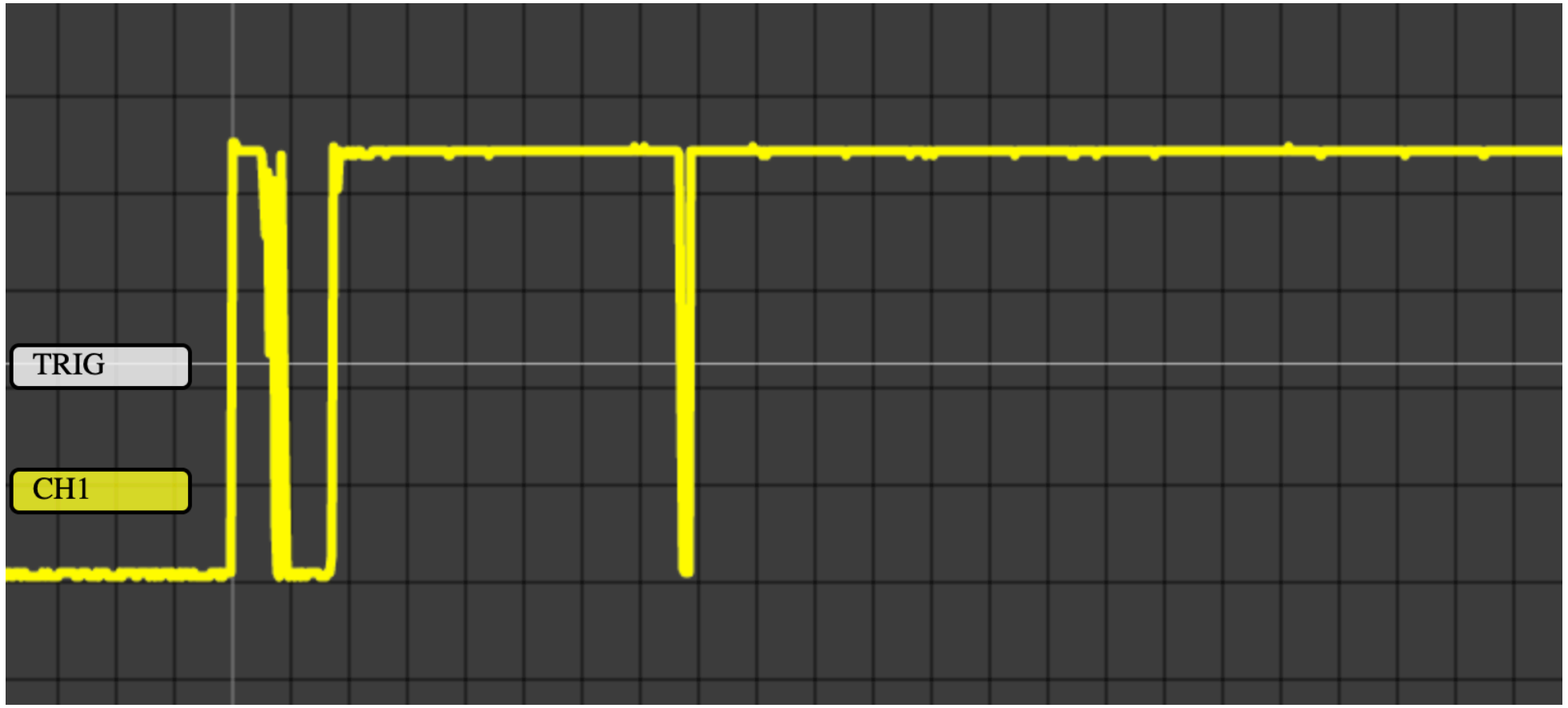



Source: Fritzing

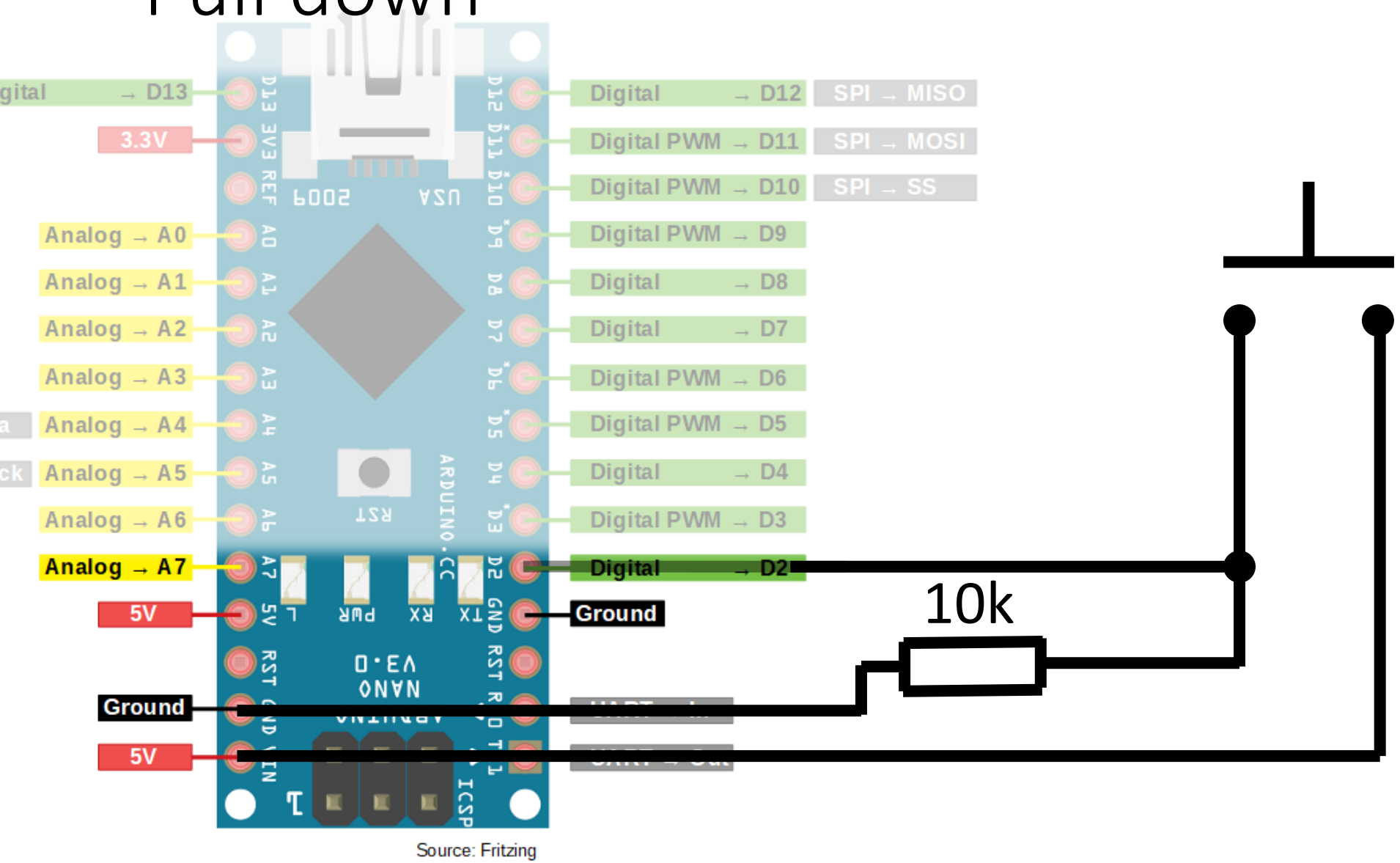



Source: Fritzing

# Experiment – sietova kapacitna vazba

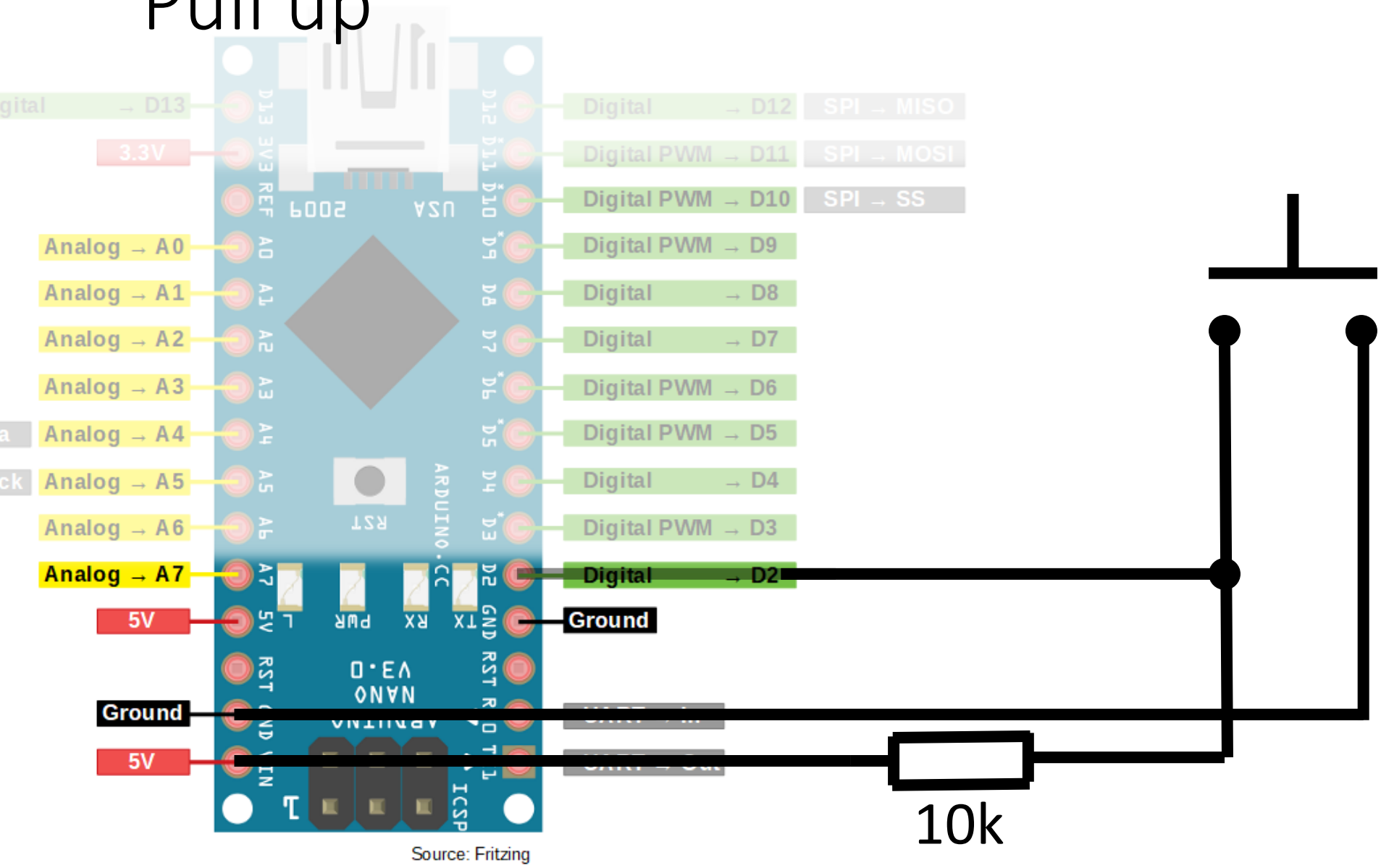


# Pull down

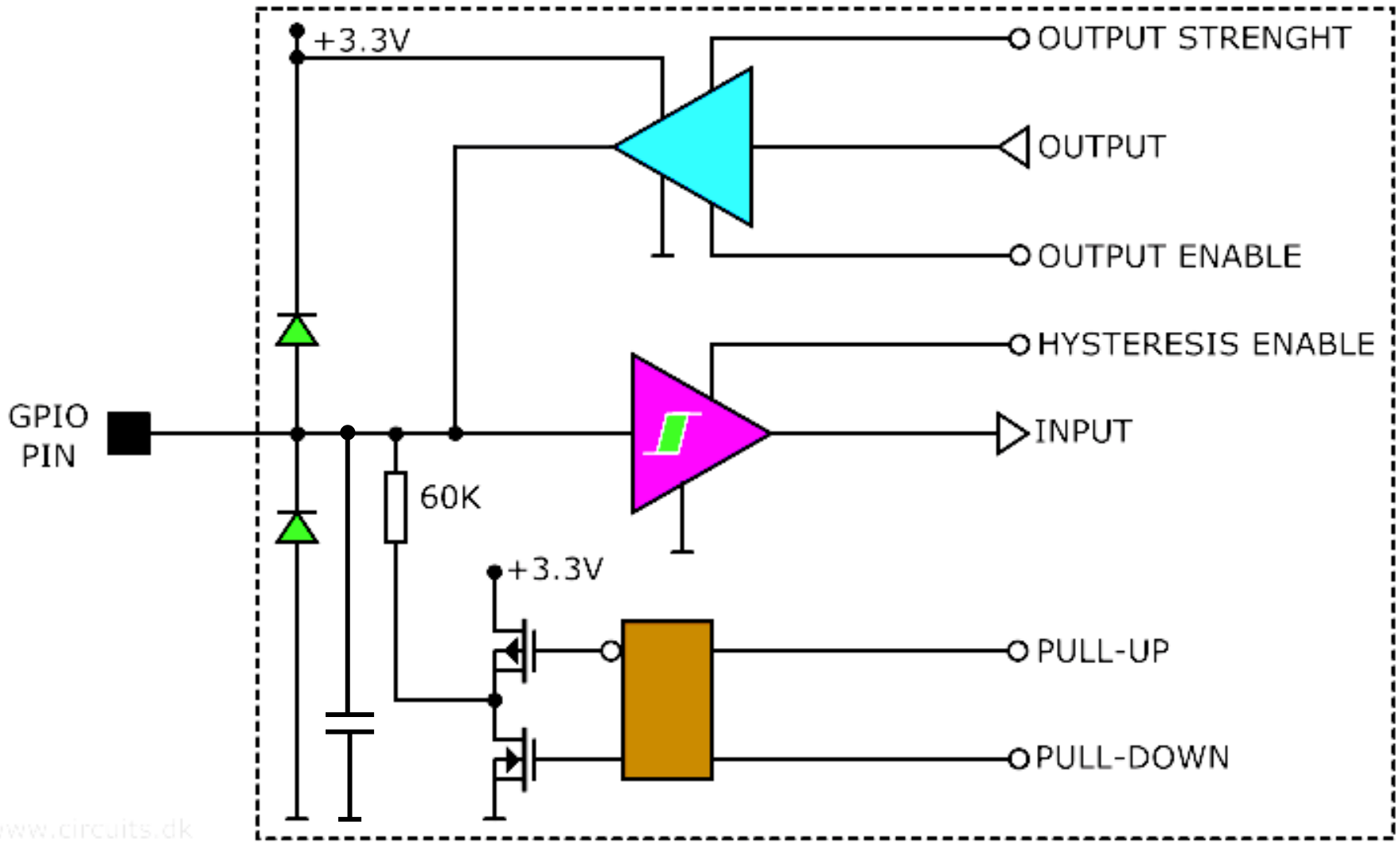



Source: Fritzing

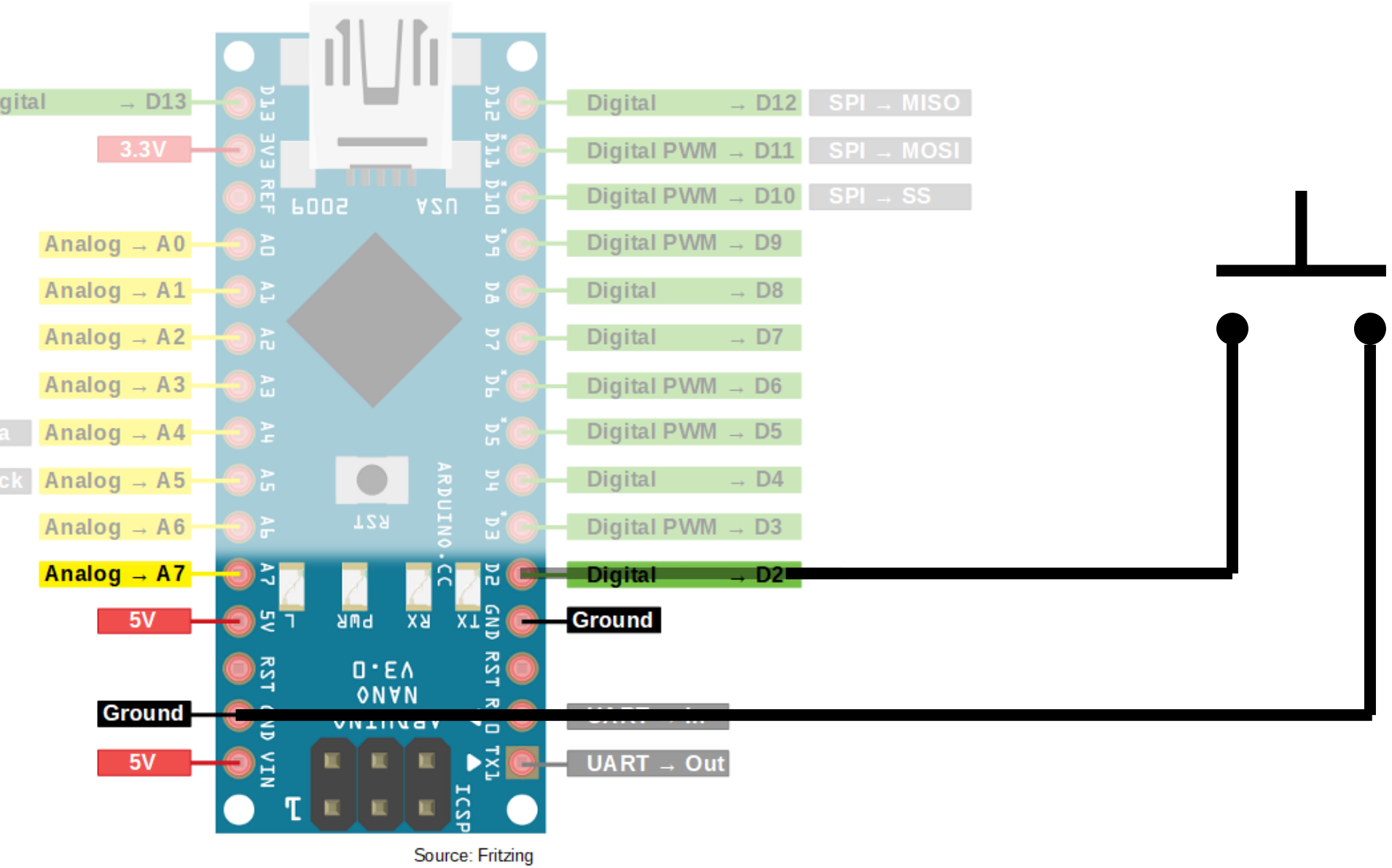
# Pull up




Source: Fritzing


+3.3V
OUTPUT STRENGHT
OUTPUT
OUTPUT ENABLE
HYSTERESIS ENABLE
GPIO
PIN
INPUT
60K
+3.3V
PULL-UP
PULL-DOWN
www.circuits.dk

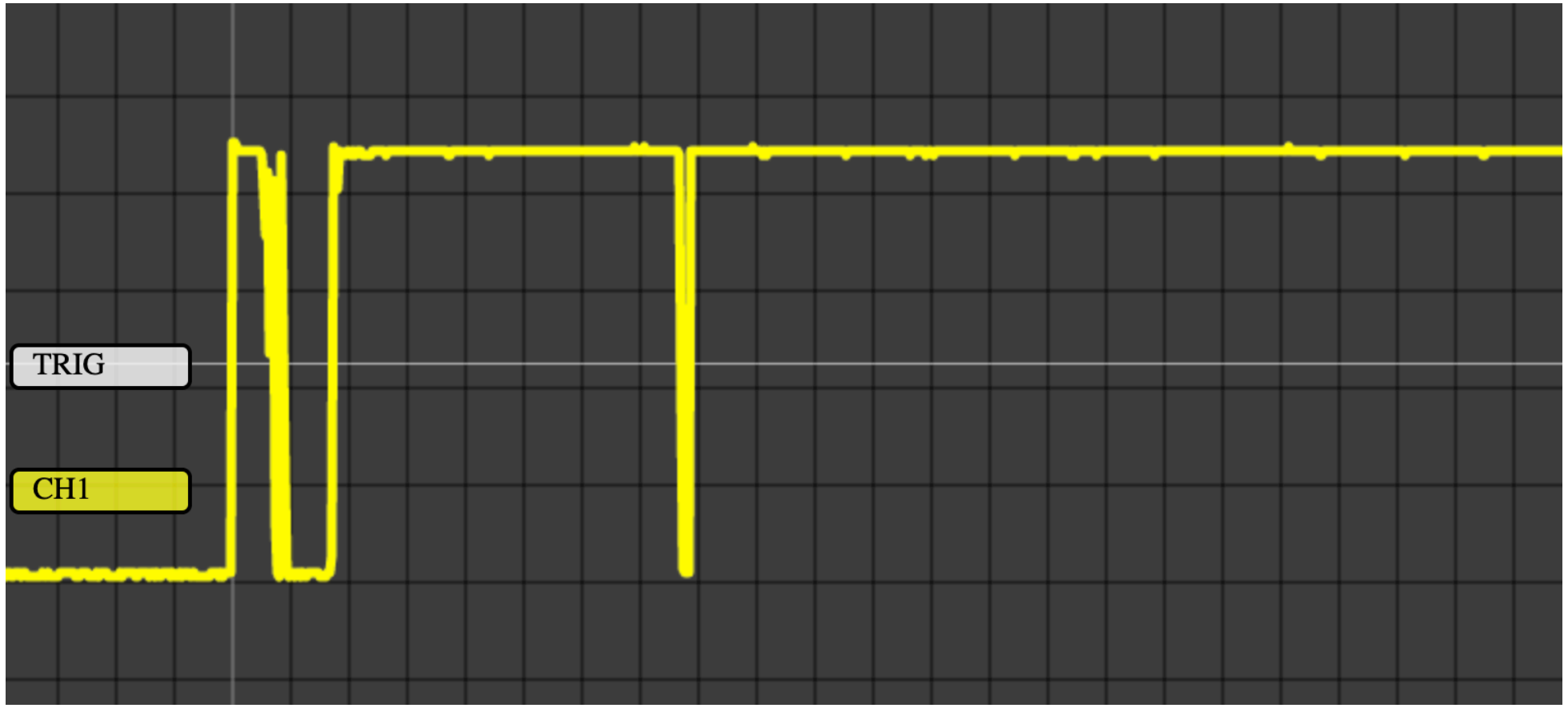
# Uloha 3: Softwarovy pull-up




Source: Fritzing

# Uloha 4: Detekovat stlacenie a rozopnutie

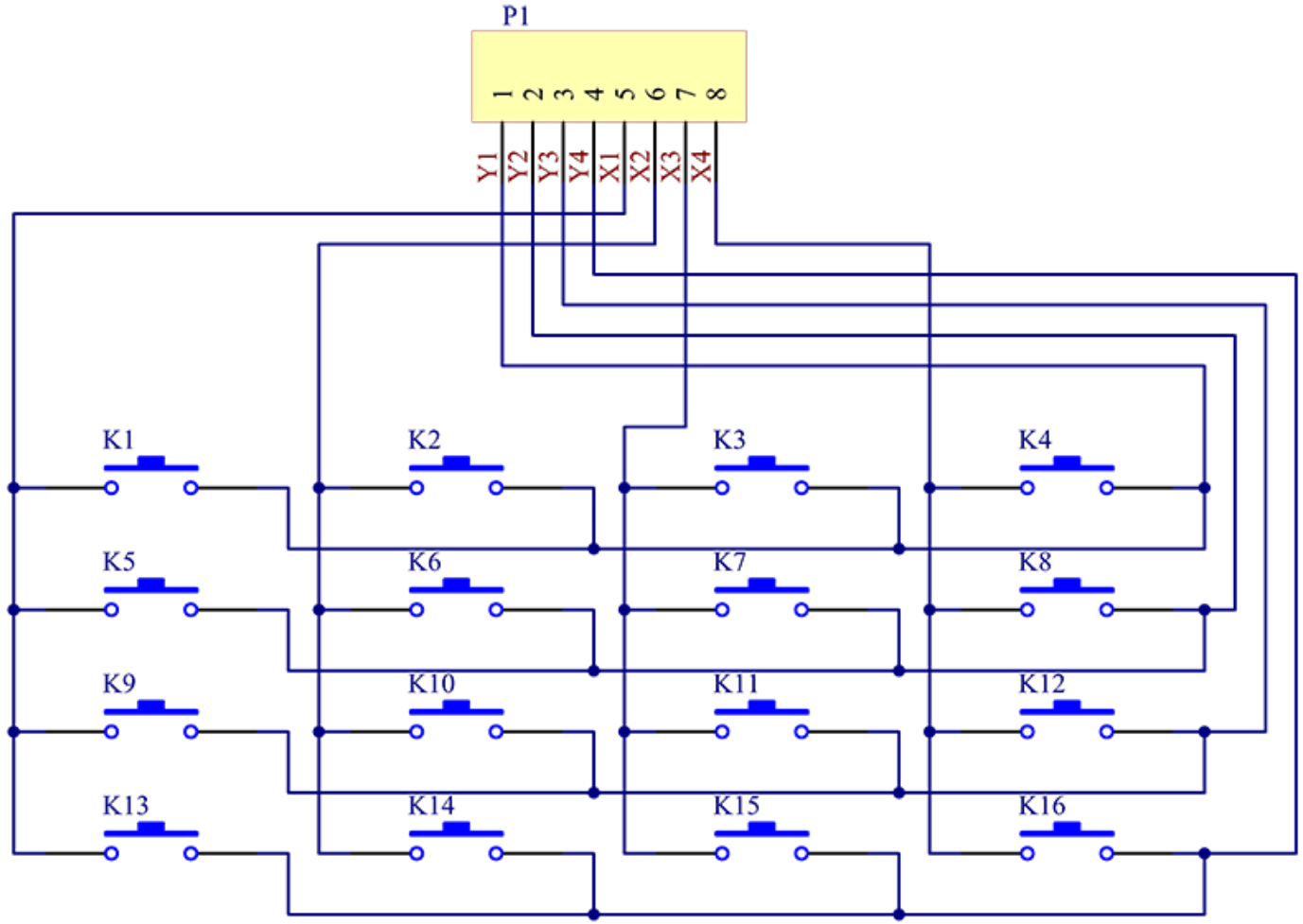
# Experiment – prechodovy jav

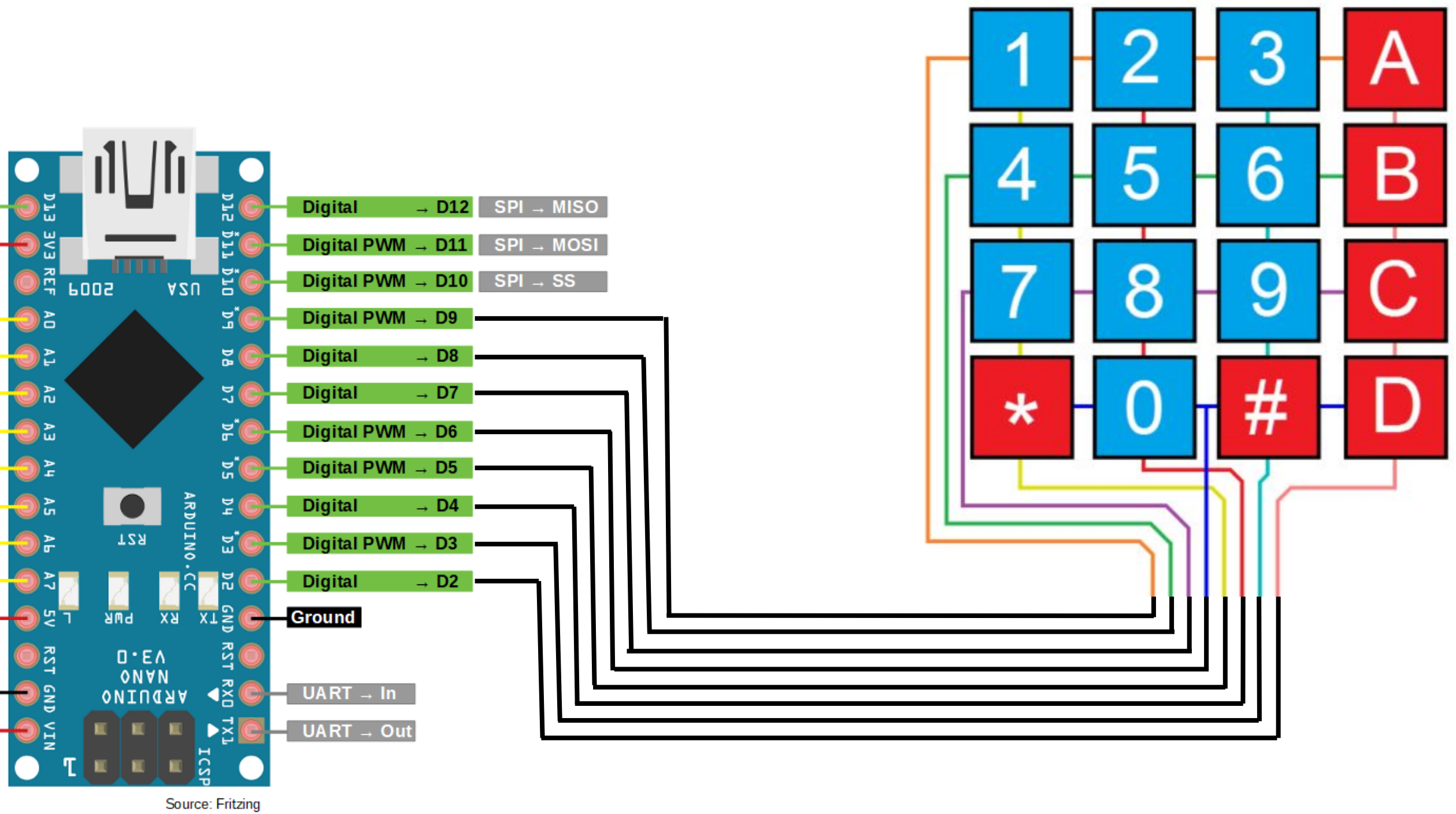


Uloha 5: Detekovat stlacenie a rozpnutie – debouncing
Uloha 6: Prepinat internu led v okamihu stlacenia tlacidla

# Maticova klavesnica

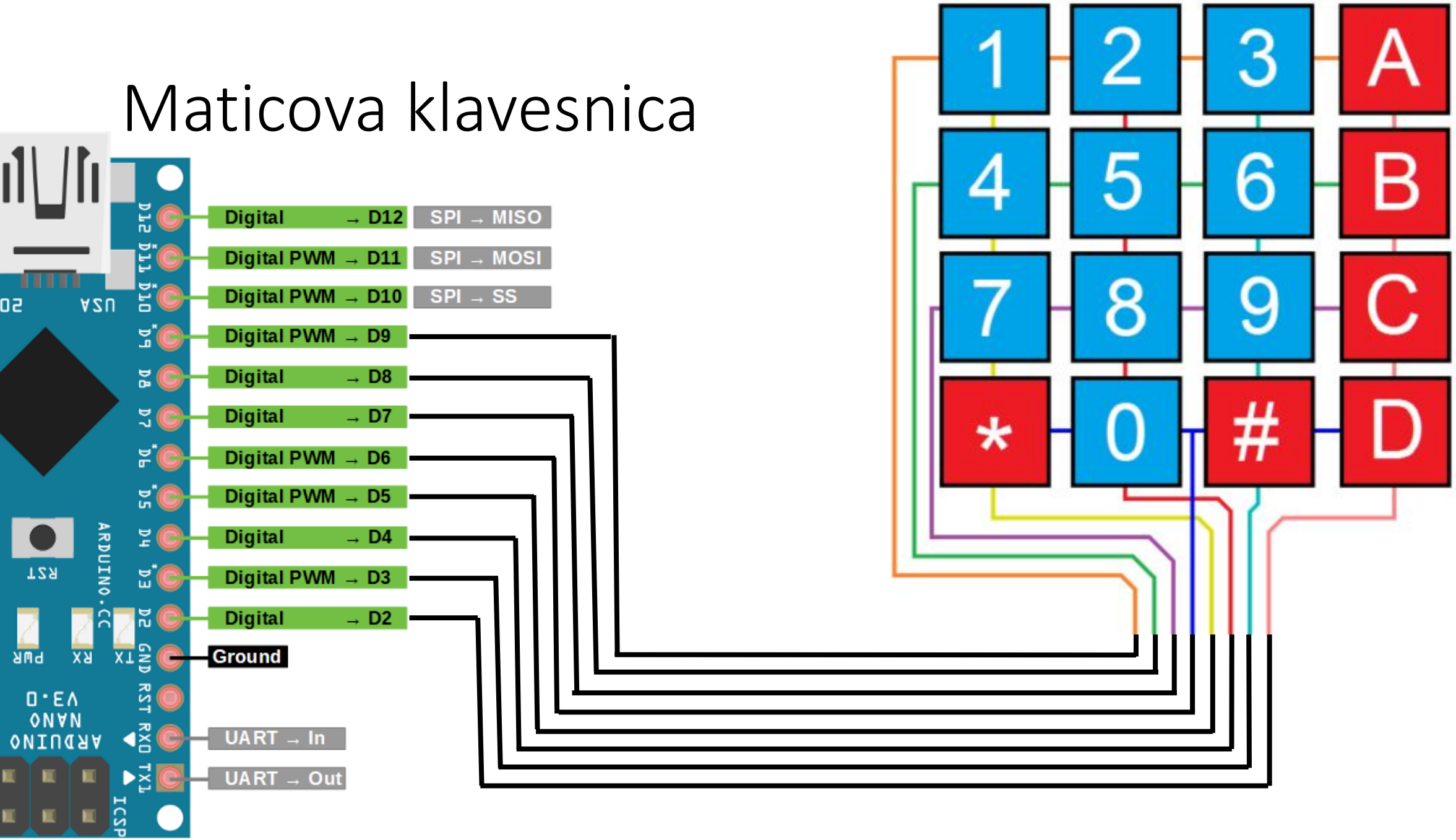
# Maticova klavesnica – zapojenie





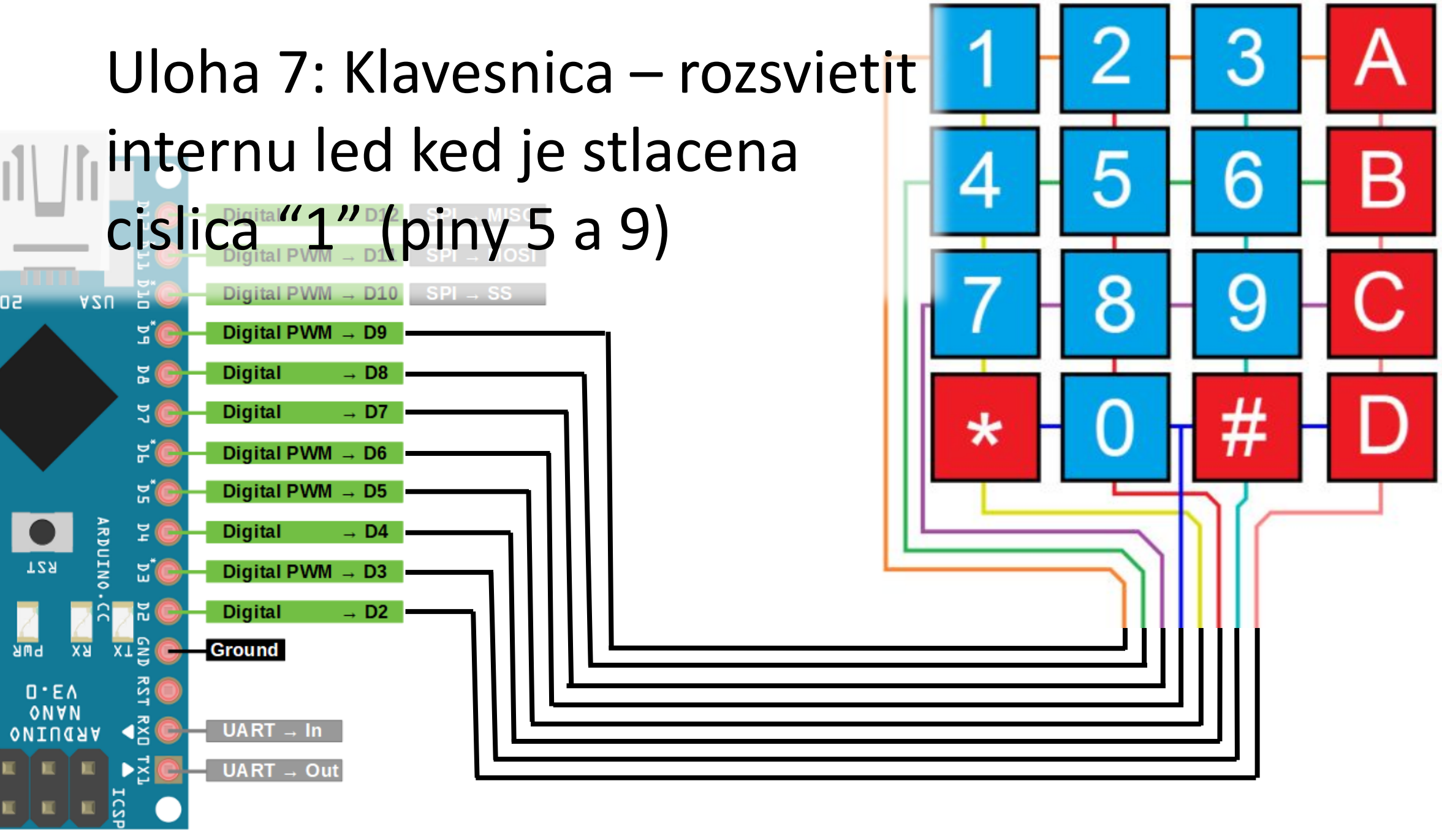

Source: Fritzing

# Maticova klavesnica

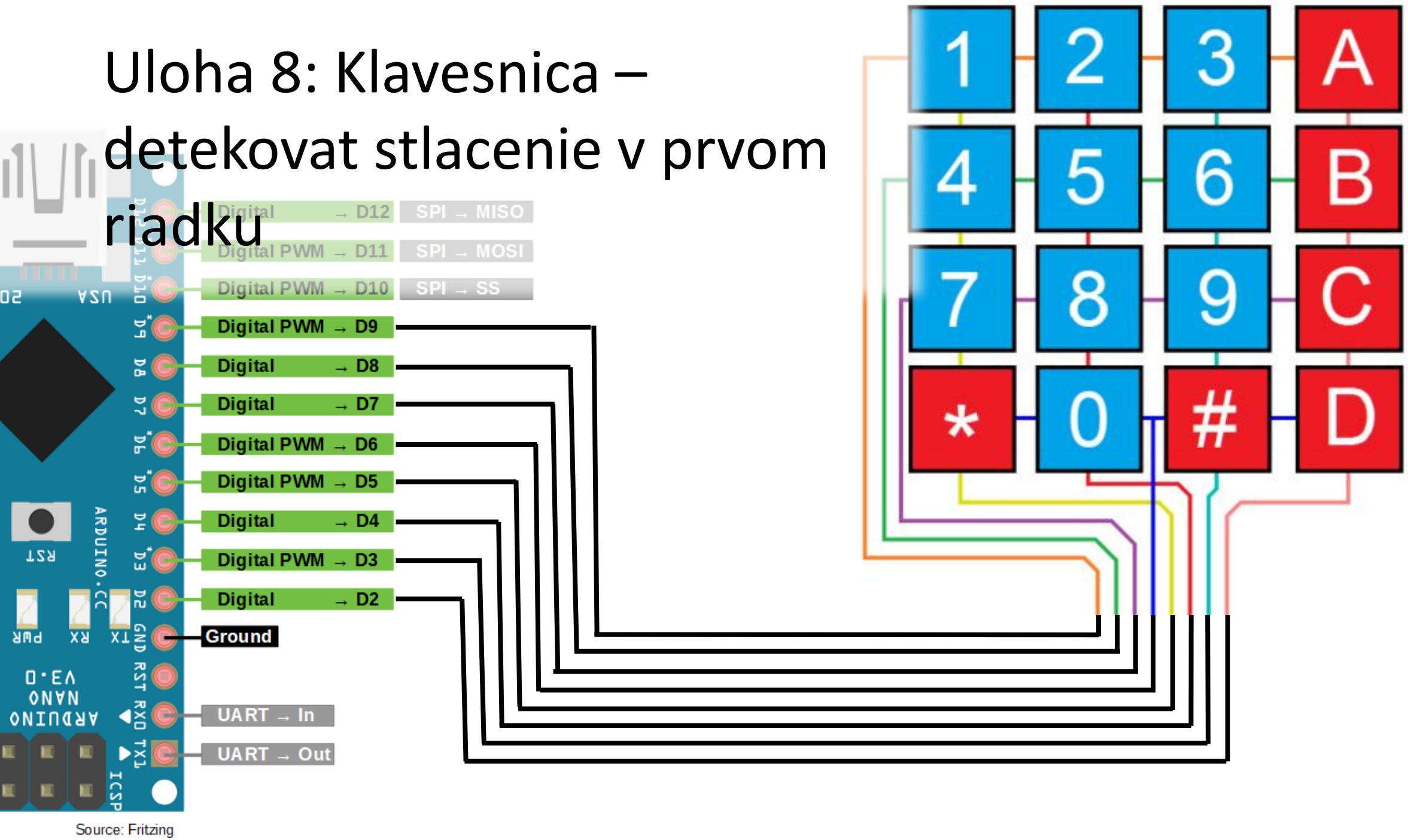



Source: Fritzing

# Uloha 7: Klavesnica – rozsvietit internu led ked je stlacena cislica “1” (piny 5 a 9)



# Uloha 8: Klavesnica – detekovat stlacenie v prvom riadku




Source: Fritzing

# Uloha 9: Klavesnica – detekovat vsetky klavesy

# Ukazka 10: Klavesnica – fantomove klavesy

# Uloha 11: Klavesnica – dvojznakovy kodovy zamok

# Uloha 12: Klavesnica – stvorznakovy kodovy zamok

# Dakujem!

Ing. Gabriel Valky, PhD.