

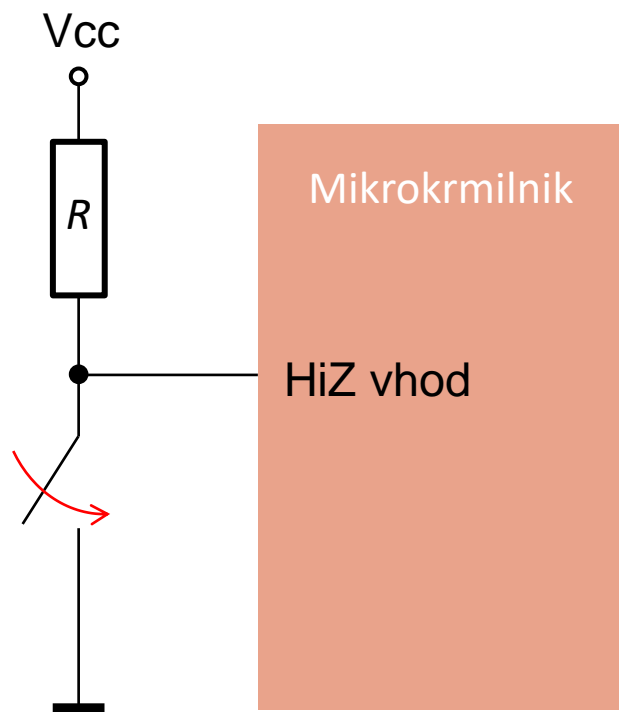
Osnove mikroprocesorske elektronike

Marko Jankovec

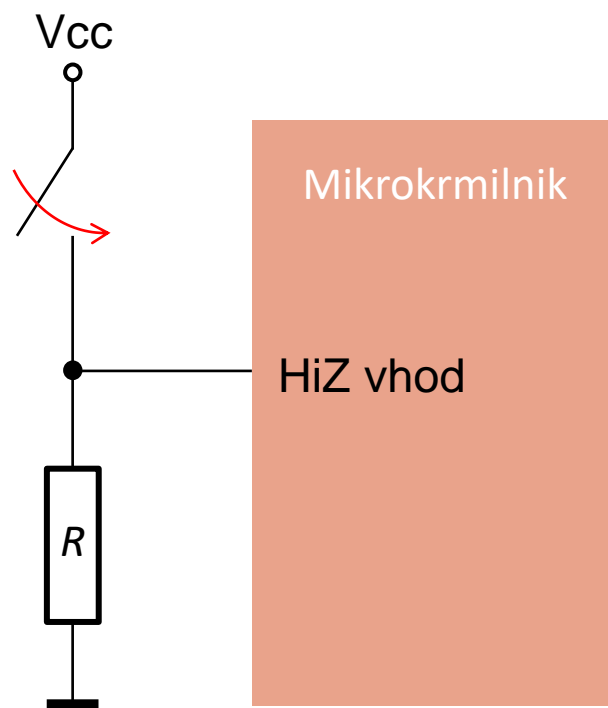
Tipke, tipkovnice in multipleksiranje

Priključitev tipke

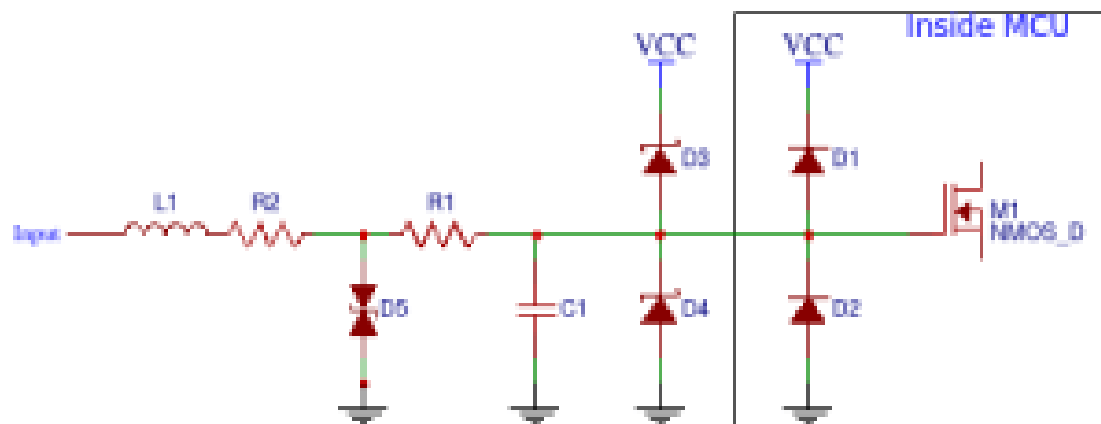
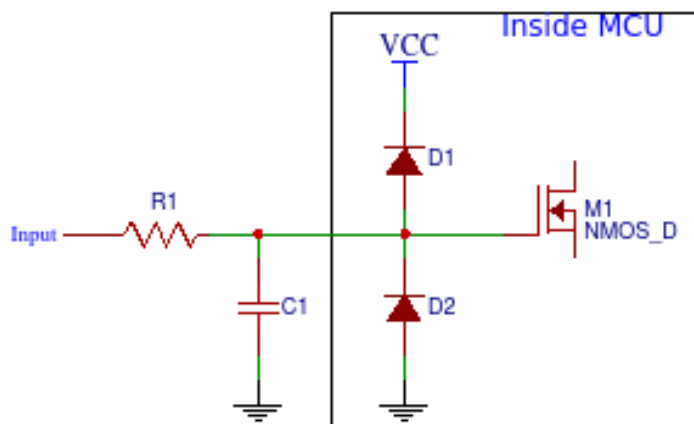
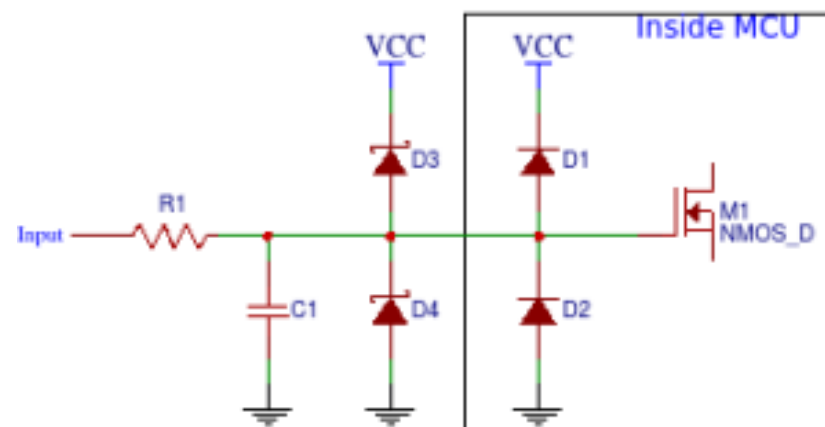
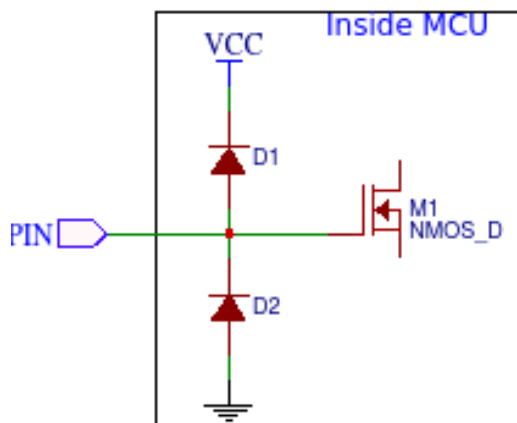
- Proti masi



- Proti napajanju

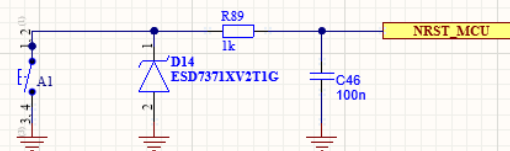
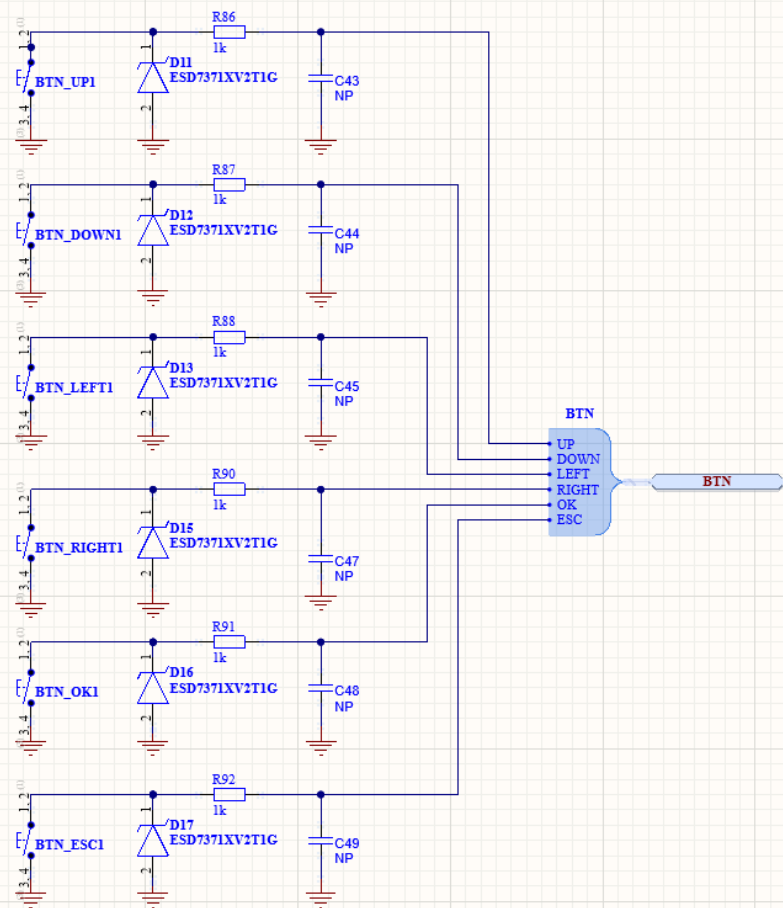


ESD zaščita vhoda za tipko



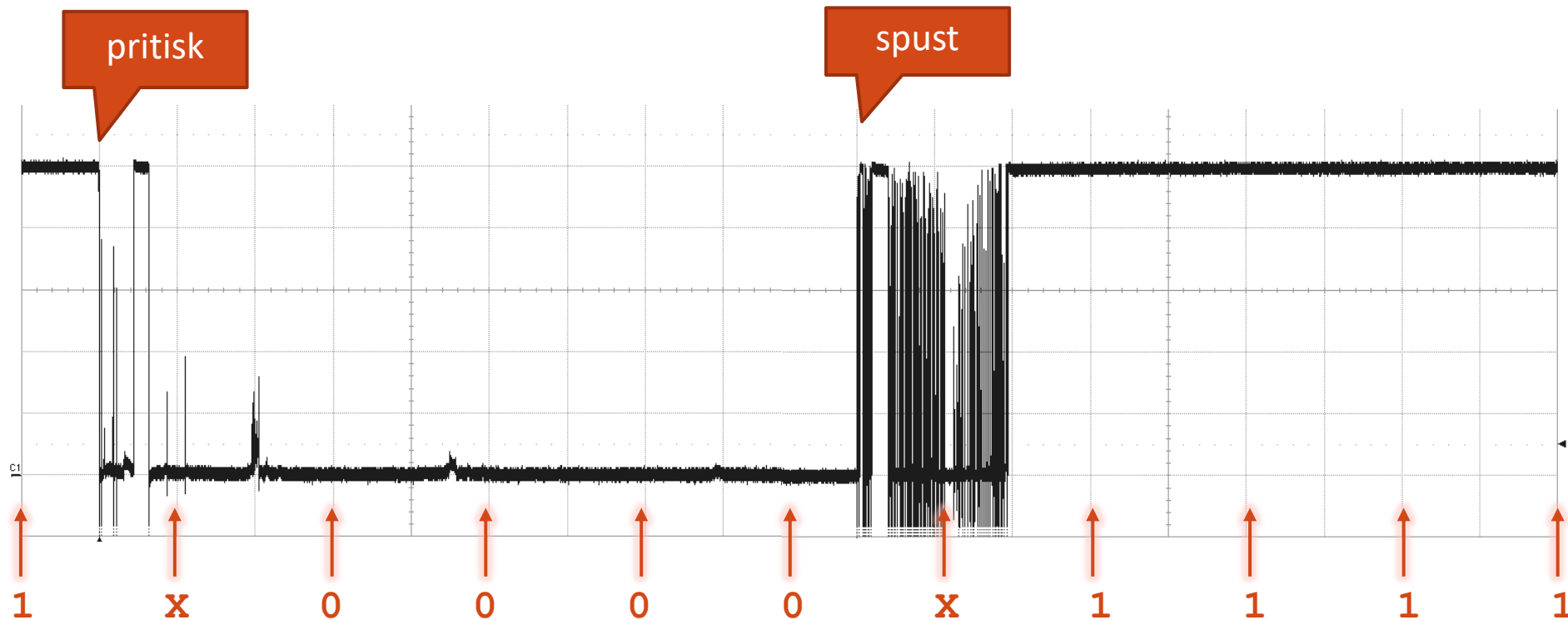
<http://www.scienceprog.com/using-current-limiting-resistors-on-avr-io-pins/>

Priključitev tipk pri MiŠKu



Project title:	MISKO 3.0	Cannot open file C:\Users\Public\Documents\Altium\Projects\MISKO3V5\fa_logo.jpg.
Sheet title:	BUTTONS	
Version:	V8	Cannot open file C:\Users\Public\Documents\Altium\Projects\MISKO3V5\system_logo.png. File does not exist.
Date:	10.0.2021	
Author:	AMADEJ PAPEŽ	
Approved by:		

Branje tipk – odskakovanje (bouncing)

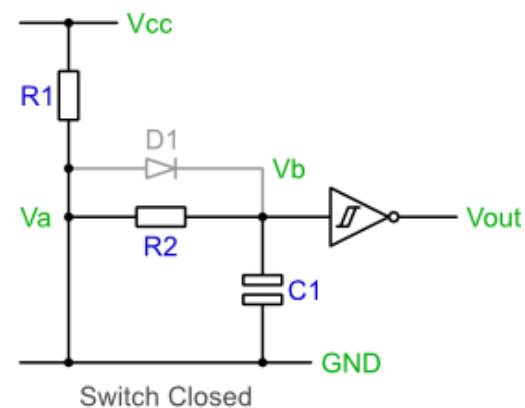
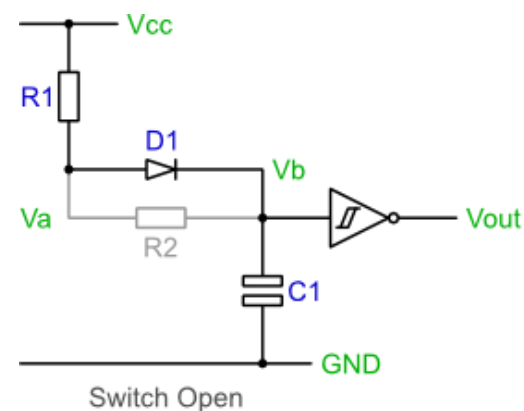
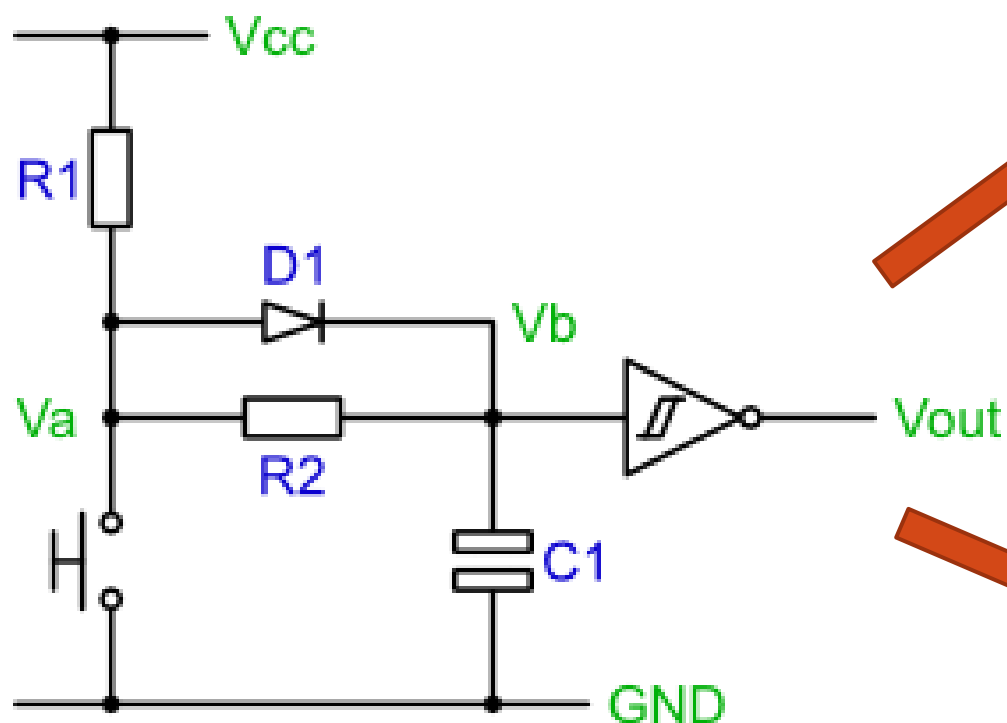


Izvedba branja ene tipke

- Nastavi ustrezne bite **GPIOG** kot vhode s pull-up upori
- Inicializiraj spremenljivke *old*, *new*
- Detekcija stiska tipke
 - Shrani staro stanje tipke *old* = *new*
 - Preberi stanje GPIO vhoda in ga shrani v *new*
 - Primerjaj vrednost *new* in *old*
 - Če je *new* enak 0, *old* pa 1, potem je bila tipka pritisnjena
- Vrni 1, če je bila tipka pritisnjena, sicer vrni 0

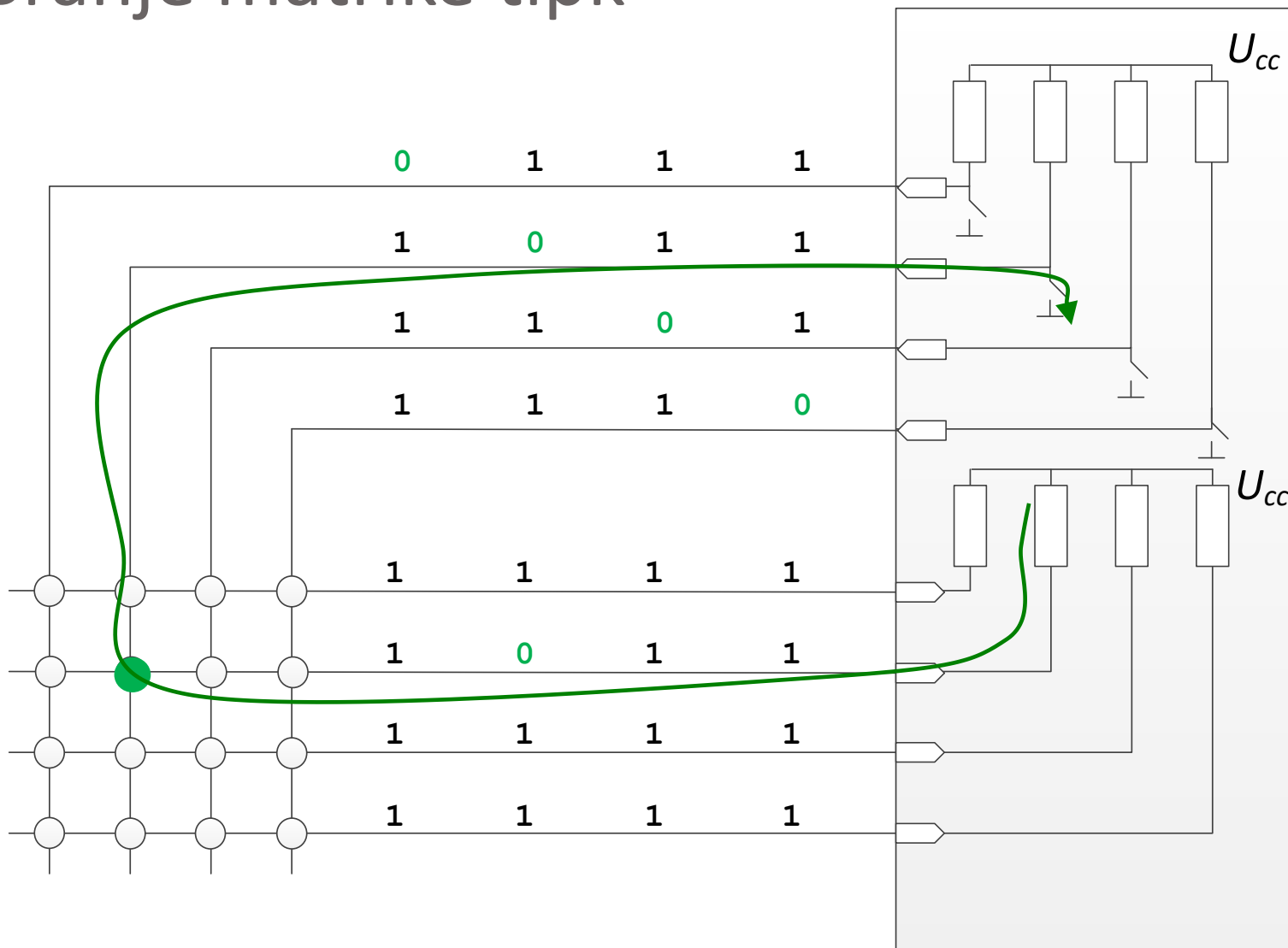
old	1	1	0	0
new	1	0	1	0
tipka	nič	pritisnjena	spuščena	nič

Strojna rešitev odskakovanja - Debouncing

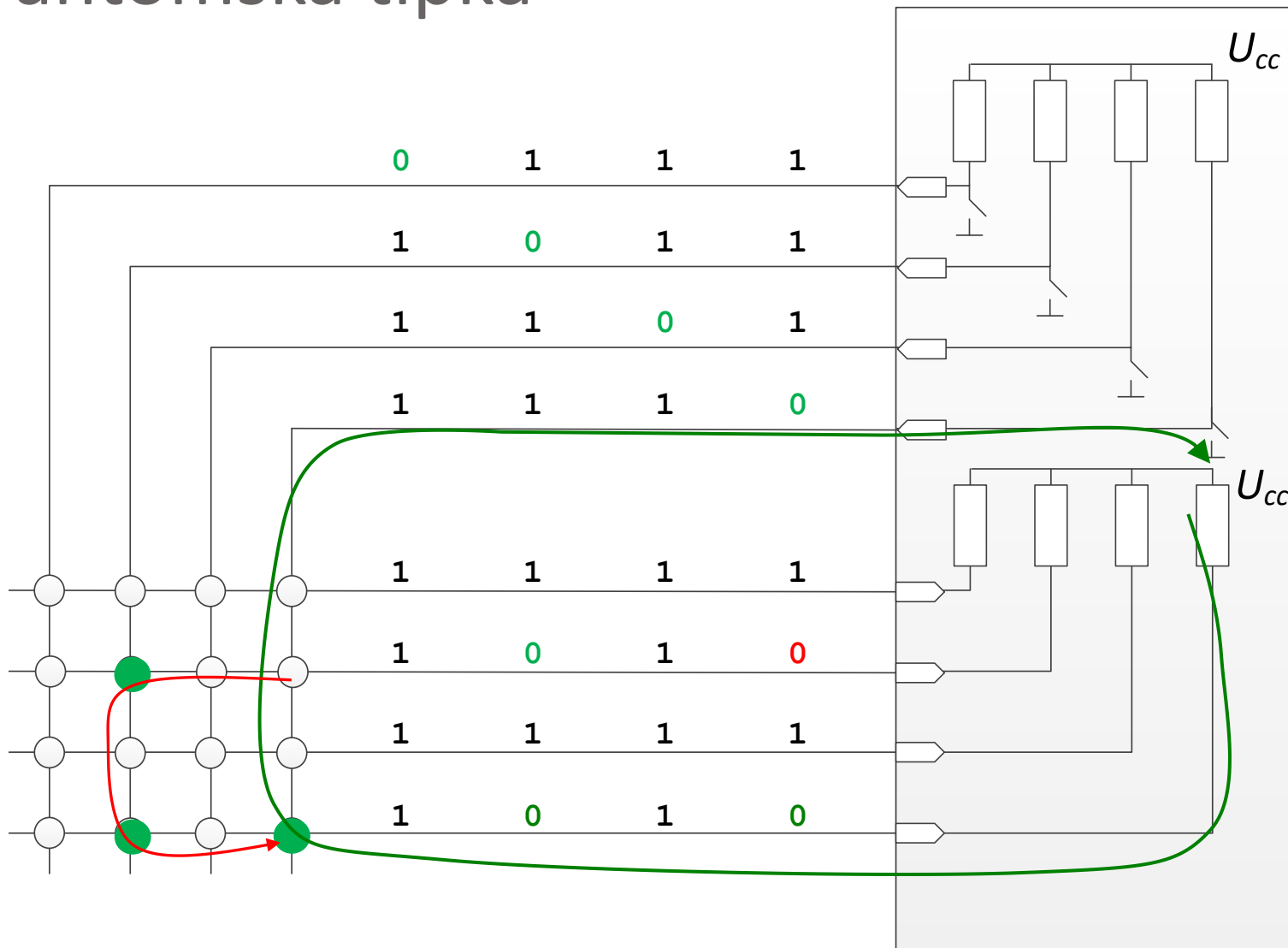


<http://www.labbookpages.co.uk/electronics/debounce.html>

Branje matrice tipk



Fantomska tipka



Odprava fantomske tipke

