LAB3

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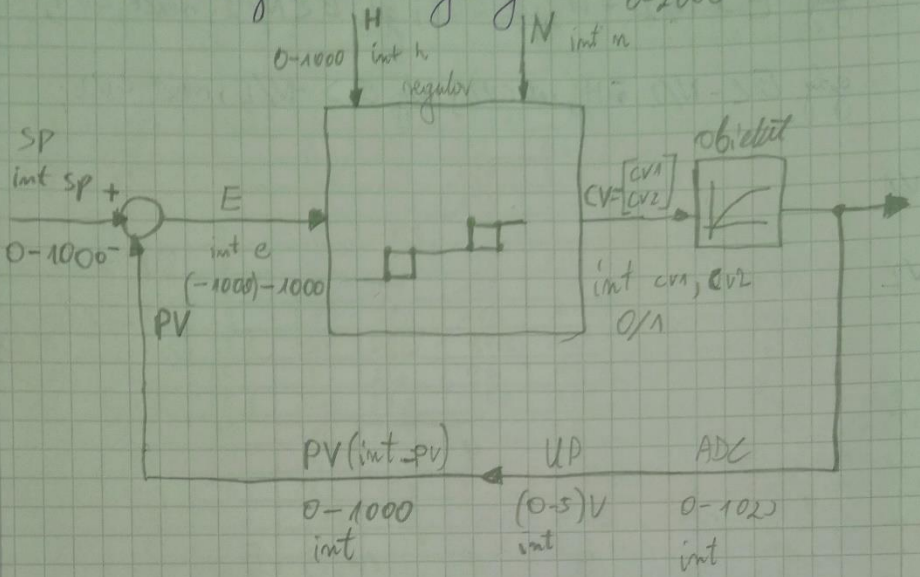
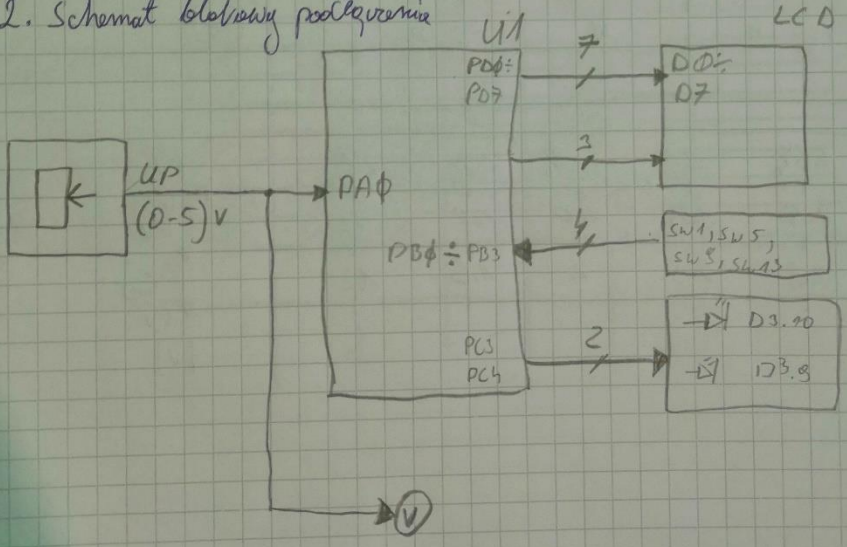
REGULATOR TRÓJSTANOWY

1. Schemat blokowy układu regulacji



2. Schemat blokowy podłączenia



3. Regulator trójstanowy

$E = SP - PV$

gdy $E > N/2 + H$, set CV1; gdy $E < N/2$, reset CV1;

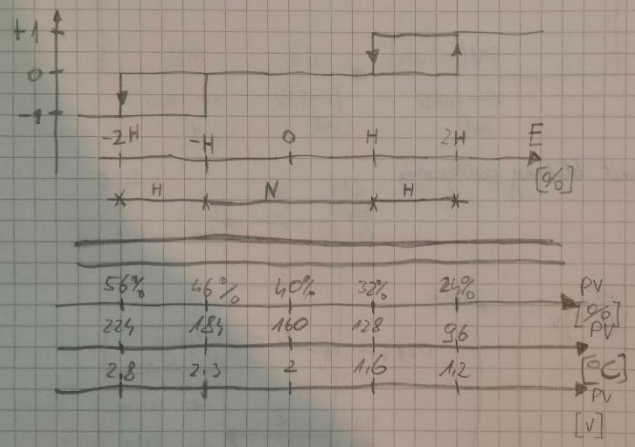
gdy $E < -N/2 - H$, set CV2; gdy $E > -N/2$, reset CV2;

CV1

CV2

$SP = 50\%$

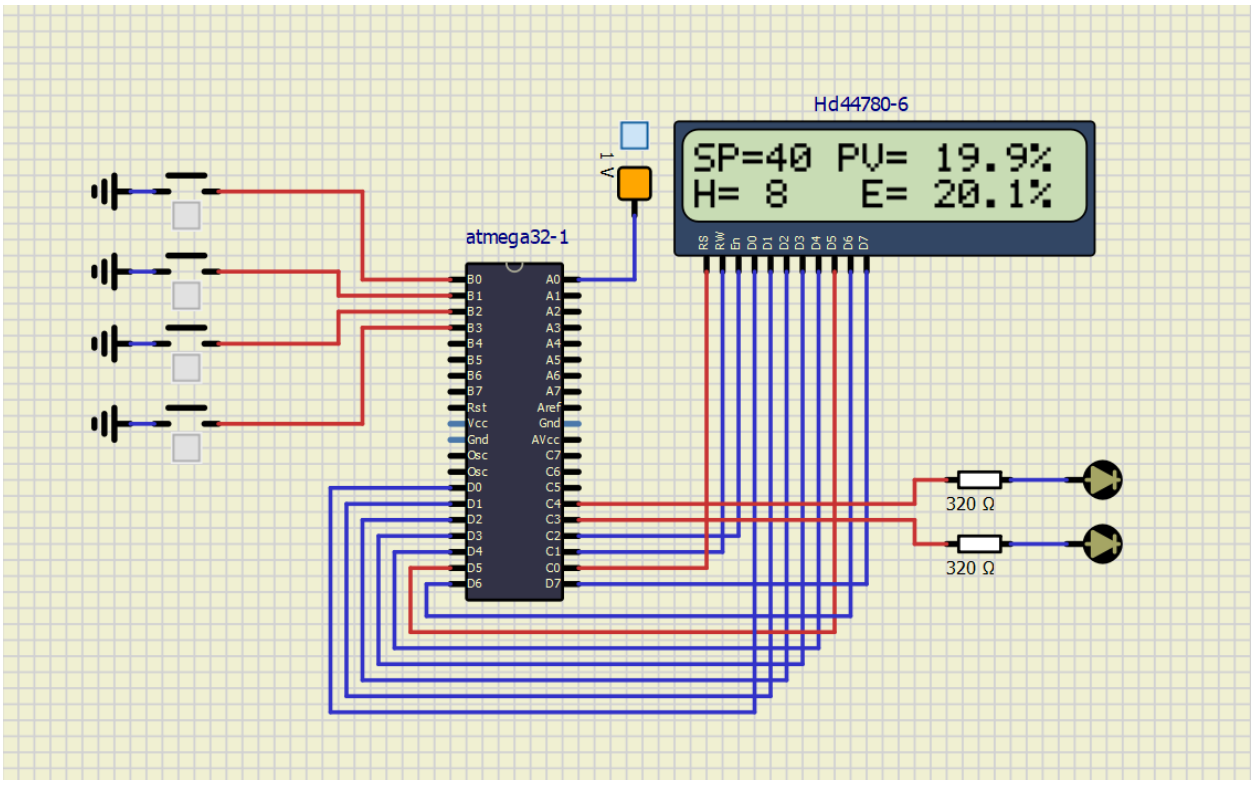
$H = 8\%$



4. Tabela pomiarowa, Badanie regulatora 3-stanowego

SP = 40 %, H = 8 %, N = 2H, zakres (0-400°C) / (0-5) V

E[H]	E[%]	E[°C]	PV[%]	PV[ADC]	PV[°C]	PV[V]	POMIAR	STAN DIOD
-2.50	-20	-80	60	614	240	3		
-2.00	-16	-64	56	573	224	2,8		
-1.50	-12	-48	52	532	208	2,6		
-1.05	-8,4	-33,6	48,4	495	193,6	2,42		
-1.00	-8	-32	48	491	192	2,4		
-0.95	-7,6	-30,4	47,6	487	190,4	2,38		
-0.50	-4	-16	44	450	176	2,2		
0.00	0	0	40	408	160	2		
0.50	4	16	36	368	144	1,8		
1.00	8	32	32	327	128	1,6		
1.50	12	48	28	286	112	1,4		
1.95	15,6	62,4	28,4	250	97,6	1,22		
2.00	16	64	24	246	96	1,2		
2.05	16,4	65,6	23,6	241	94,4	1,18		
2.50	20	80	20	205	80	1,0		
2.00	16	64	24	246	96	1,2		
1.50	12	48	28	286	112	1,4		
1.05	8,4	33,6	31,6	323	126,4	1,58		
1.00	8	32	32	327	128	1,6		
0.95	7,6	30,4	32,4	331	129,6	1,62		
0.50	4	16	36	368	144	1,8		
0.00	0	0	40	408	160	2		
-0.50	+4	-16	44	450	176	2,2		
-1.00	-8	-32	48	491	192	2,4		
-1.50	-12	-48	52	532	208	2,6		
-1.95	-15,6	-62,4	55,6	569	222,4	2,78		
-2.00	-16	-64	56	573	224	2,8		
-2.05	-16,4	-65,6	56,4	577	225,6	2,82		
-2.50	-20	-80	60	614	240	3		


Hd44780-6
SP=40 PV= 19.9%
H= 8 E= 20.1%
RS RW En D0 D1 D2 D3 D4 D5 D6 D7
atmega32-1
B0 B1 B2 B3 B4 B5 B6 B7 Rst Vcc Gnd Osc Osc D0 D1 D2 D3 D4 D5 D6
A0 A1 A2 A3 A4 A5 A6 A7 Aref Gnd AVcc C7 C6 C5 C4 C3 C2 C1 C0 D7
1 V
320 Ω
320 Ω