

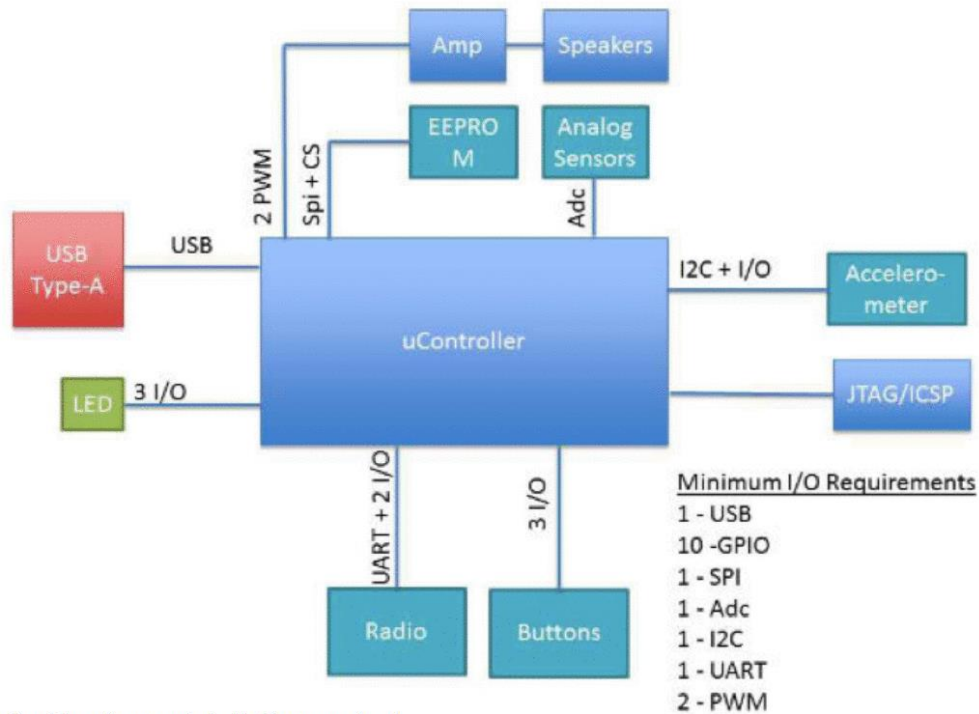
20.EM306

Razvoj softvera za embeded sisteme

prof. dr Ivan Mezei



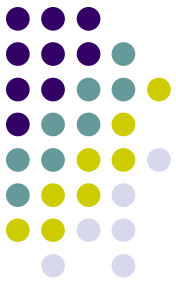
“Firmveraš”



Rejting programskih jezika

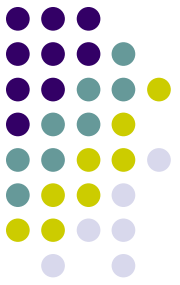
(izvor: IEEE Micro)

Embedded 



Language Ranking: IEEE Spectrum

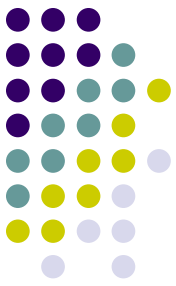
Rank	Language	Type	Score
1	Python▼	  	100.0
2	C▼	  	94.6
3	C++▼	  	87.0
4	Arduino▼		73.2
5	Assembly▼		63.7
6	Rust▼	  	55.6
7	C#▼	   	48.1
8	Verilog▼		37.6
9	VHDL▼		36.7



Cilj i sadržaj predmeta

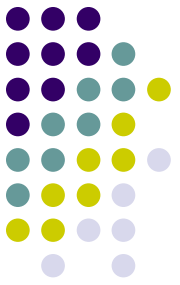
- Proširenje znanja vezanih za C programski jezik za mikrokontrolere
- ‘Kulturno’ programiranje 😊
- Komunikacija sa periferijama
- Osnove RTOS
- Optimizacija koda

Primer

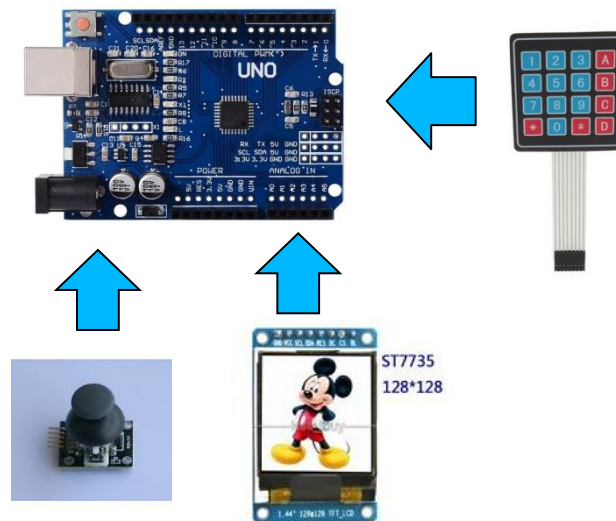


<i>Osnovna varijanta</i>	<i>Alternativa 1.</i>	<i>Alternativa 2.</i>
<pre>brojac++; brojac &= 31;</pre>	<pre>brojac++; if (brojac>31) brojac = 0;</pre>	<pre>brojac = (brojac<31) ? (brojac+1) : 0;</pre>
<pre>inc brojac andl brojac,#0x1f</pre>	<pre>inc brojac mov a,brojac setb c subb a,#0x1f jc skip clr a mov brojac,a skip:</pre>	<pre>mov a,brojac clr c subb a,#0x1f jnc skip1 mov a,brojac inc a mov r7,a sjmp skip2 skip1: mov r7,#0 skip2: mov brojac,r7</pre>
Veličina: 5 bajtova	Veličina: 12 bajtova	Veličina: 17 bajtova

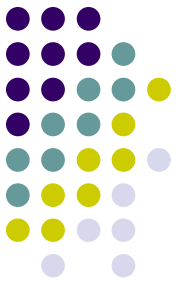
Sadržaj računarskih vežbi



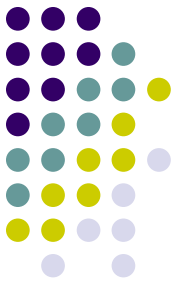
- Programiranje mikrokontrolera ATmega328p u Eclipse IDE
- Pisanje i upotreba biblioteka za upravljanje periferijama (serijski port, matrična tastatura, PLS7 ...)
- Kontrola verzije (GIT)
- Generisanje dokumentacije (Doxygen)
- Uvod u operativne sisteme za rad u realnom vremenu



Način polaganja



- Teorija 50%
- Vežbe 50%
- Dolasci, aktivnost i bonus do 5%



Hvala na pažnji!