Final Task EIB3 WS24|25

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1 Schematics

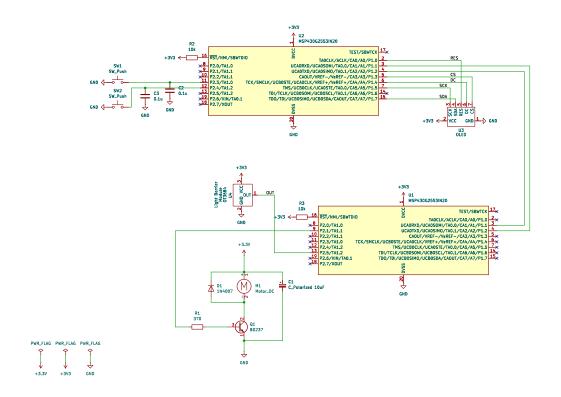


Abbildung 1: Project scheme

2 Structograms

2.1 Motor-Controller

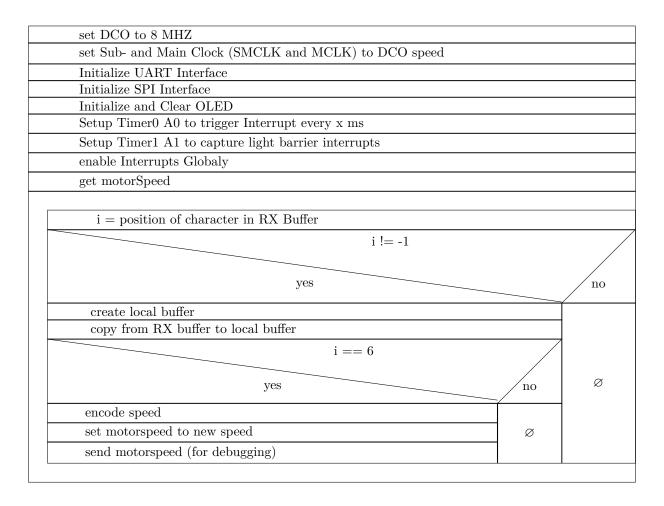


Abbildung 2: Motor-Controller Main function

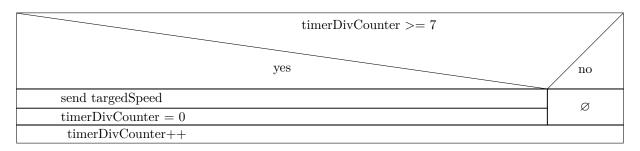


Abbildung 3: Motor-Controller Timer
0_A0 ISR

calculate interval from TA1CCR2	
motorSpeed = 8e6 / interval	
PID routine	
targedSpeed > motorSpeed	
yes	no
e = targedSpeed - motorSpeed	e = motorSpeed - targedSpeed
$e_sum = e_sum + e$	$e_sum = e_sum - e$
$e_ld = e - e_ld$	$e_ld = -e - e_ld$
$y = (Kp * e) + (Ki * e_sum)$	
limit calculations to uint 16	
write PWM value to TA1CCR1 Abbildung 4: Motor-Controller Timer1_A1 ISR	

3

2.2 Display-Controller

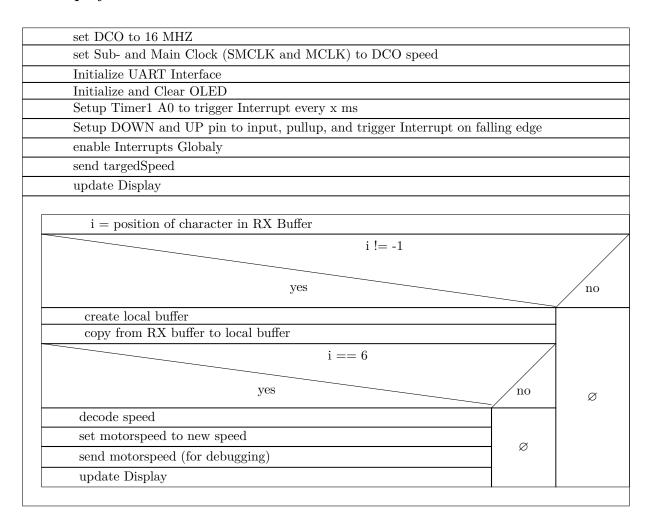


Abbildung 5: Display-Controller Main function

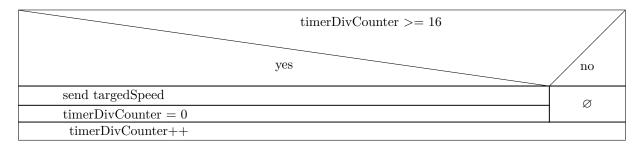


Abbildung 6: Display-Controller Timer1_A0 ISR

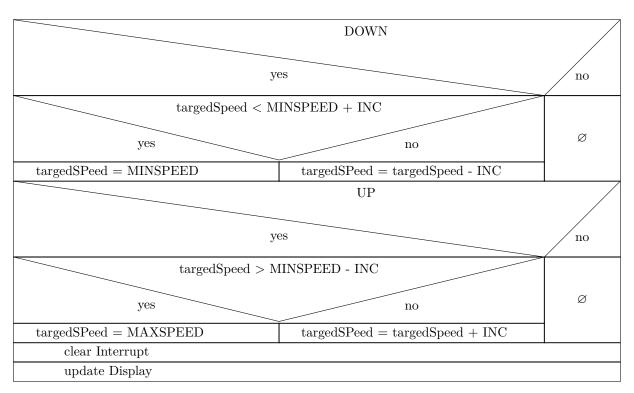


Abbildung 7: Display-Controller Button UP and DOWN ISR