# Final Task EIB3 WS24|25

Niklas Bachmann Manuel König

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## 1 Schematics

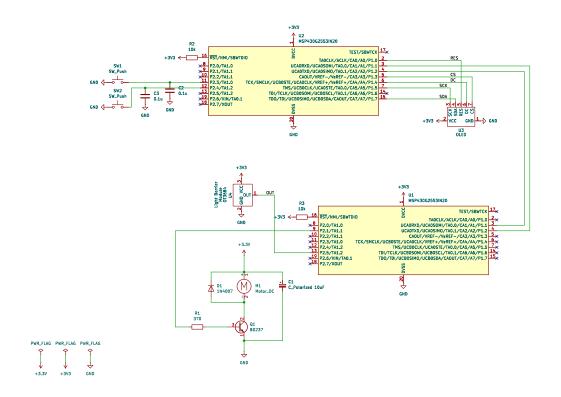


Abbildung 1: Project scheme

### 2 Structograms

#### 2.1 Motor-Controller

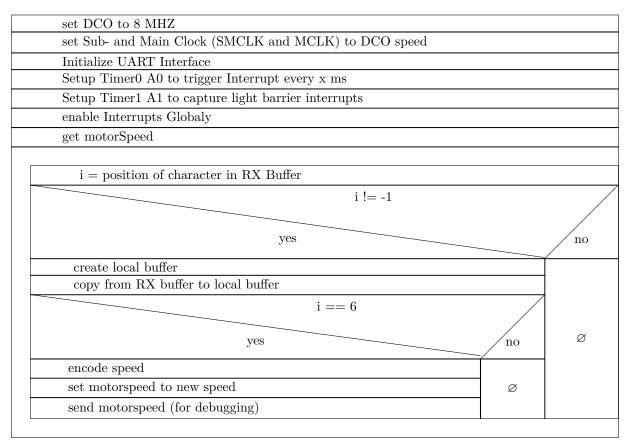


Abbildung 2: Motor-Controller Main function

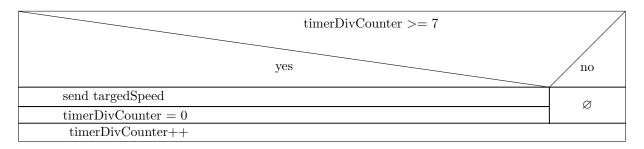


Abbildung 3: Motor-Controller Timer<br/>0\_A0 ISR

calculate interval from TA1CCR2	
$motorSpeed = 8 \cdot 10^6 / interval$	
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

### 2.2 Display-Controller

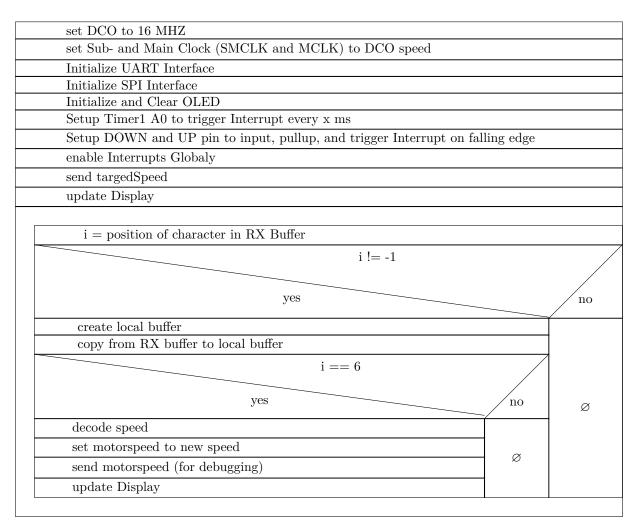


Abbildung 5: Display-Controller Main function

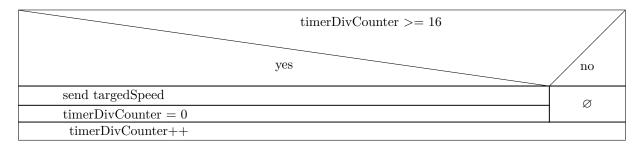


Abbildung 6: Display-Controller Timer1\_A0 ISR

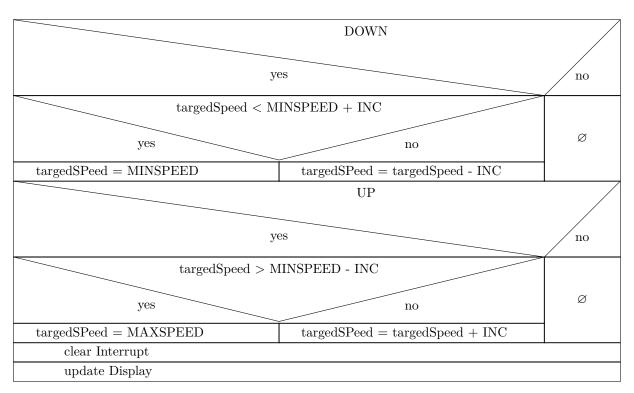


Abbildung 7: Display-Controller Button UP and DOWN ISR