

# Assembler Counter

# Ideen

- wenig Komponenten in MCU 8051 IDE
- Displays und Knöpfe
- Temperatursensor?

# Counter

**Knopf drücken -> Hochzählen**

# Wie?

- Knopfdruck erkennen
- Dezimal zählen
- Dezimalzahl auf Display anzeigen

# Verbesserungen

- Zahlen Codes (Display) in ~~RAM~~ Datenbank
- Schönerer Code

# Erweiterungen

- Timer
- Reset Knopf
- 5 Geräte - 4 Ports

```
47  main_loop:
48
49      if_counter_enabled:
50          JNB COUNT_TIME_BUTTON, end_if_counter_enabled
51          JB ET0, end_if_counter_enabled
52          MOV TH0, #0F0h
53          MOV TL0, #060h
54          SETB ET0
55      end_if_counter_enabled:
56
57      ; ...
58
59      JMP main_loop
```

```
73  increment:
74      MOV R3, DIGIT_0
75      CJNE R3, #09h, increment_ones
76      MOV DIGIT_0, #00h
77      MOV R3, DIGIT_1
78      CJNE R3, #09h, increment_tens
79      MOV DIGIT_1, #00h
80      MOV R3, DIGIT_2
81      CJNE R3, #09h, increment_hundrets
82      MOV DIGIT_2, #00h
83      MOV R3, DIGIT_3
84      CJNE R3, #09h, increment_thousands
85      MOV DIGIT_3, #00h
86      JMP display3
```



```
131 display0:
132     MOV A, DIGIT_0
133     MOV DPTR, #display_codes
134     MOVC A, @A+DPTR
135     MOV P0, A
136     RET
137
138 org 300h
139 display_codes:
140     db 0xBF, 0x86, 0xDB, 0xCF, 0xE6
141     db 0xED, 0xFD, 0x87, 0xFF, 0xEF
```

# Demo

