Mastering Microcontrollers Helped By Arduino

Parts List

Here is the list of the components used in this book.

Chapter 6

Figure 6-9

- R1 to R4 = 680 Ω
- LED1 to LED16 = LED (red, green, orange, yellow)

Figure 6-10

- R1 to R4 = 680 Ω
- S1 to S16 = pushbutton
- D1 to D16 = 1N4148
- LED1 to LED16 = LED (red, green, orange, yellow)

Chapter 7

Figure 7-3

- R1 = 330 Ω
- P1 = 10 kΩ linear
- LED1 = LED (red, green, orange, yellow)

Figure 7-5

- R1 to R4 = 15 kΩ
- P1 = 10 kΩ linear
- Q1, Q4 = BC547 (A, B or C)
- Q2, Q5 = IRF630 (Vishay Siliconix)
- Q3, Q6 = IRF9630 (Vishay Siliconix)

Figure 7-12

- R1 = 47 kΩ
- R2, R3 = 150 kΩ
- R4 = 150 Ω
- C1 = 47 nF
- C2, C3 = 220 nF
- C4 = 100 nF
- IC1 = LMC6464 (Texas Instruments)
- BAT1 = pile 1,5 V AAA
- LS1 = little loudspeaker (scavenged from an old transistor radio for instance)
- K1/K2 = stereo 3,5 mm audio connector “mini jack” (note that K1 and K2 reference the same connector)

For the fork:

- Metal fork
- Piece of self-adhesive copper tape
- Self-adhesive isolation tape
- Piece of copper tubing

- Stereo 3,5 mm audio plug “mini jack”
- Cable with two shielded conductors (f. ex. two-channel audio cable)

Chapter 8

Figure 8-1

- R1 = 10 kΩ
- R2 = 47 Ω
- P1 = 10 kΩ adjustable resistor (“trimmer”)
- T1 = BC547 (A, B or C)
- LCD1 = alphanumeric display with 2 lines of 16 characters (4-line by 20-character type will work too)

Figure 8-5

- R1 = 10 kΩ
- R2 = 47 Ω
- P1 = 10 kΩ adjustable resistor (“trimmer”)
- T1 = BC547 (A, B or C)
- GPS = GPS receiver module with antenna (f. ex. Mikroelektronika GPS Click http://www.mikroe.com/add-on-boards/gps/)
- LCD1 = alphanumeric display with 2 lines of 16 characters (4-line by 20-character type will work too)

Figure 8-7

- R1 = 10 kΩ
- R2 = 47 Ω
- R3, R4 = 6,8 kΩ
- R5, R6 = 2,2 kΩ
- P1 = 10 kΩ adjustable resistor (“trimmer”)
- D1, D2 = 3,3 V zener diode
- T1 = BC547 (A, B or C)
- T2, T3 = BS170
- MOD2 = HP03S (Hope RF)
- LCD1 = alphanumeric display with 2 lines of 16 characters (4-line by 20-character type will work too)

Figure 8-11

- R1 = 10 kΩ
- R2 = 47 Ω
- R3, R4 = 6,8 kΩ
- R5, R6 = 2,2 kΩ
- R7 = 10 kΩ
- P1 = 10 kΩ adjustable resistor (“trimmer”)
- C1 = 100 nF
- D1, D2 = 3,3 V zener diode
- T1 = BC547 (A, B or C)
- T2, T3 = BS170
- LCD1 = alphanumeric display with 2 lines of 16 characters (4-line by 20-character type will work too)
- MOD2 = HP03S (Hope RF)
- MOD3 = SHT11 (Sensirion)

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Chapter 9

Figure 9-2

- MOD2 = DCF77 receiver module (f. ex. Conrad 641138)

Figure 9-3

- R1 = 10 kΩ
- R2 = 47 Ω
- P1 = 10 kΩ adjustable resistor (“trimmer”)
- T1 = BC547 (A, B or C)
- LCD1 = alphanumeric display with 2 lines of 16 characters (4-line by 20-character type will work too)
- MOD2 = DCF77 receiver module (f. ex. Conrad 641138)

Figure 9-5

(// means two resistors in parallel)

- R1 = 1 MΩ // 22 kΩ
- R2, R5 = 3,3 kΩ // 120 Ω
- R3 = 3,3 MΩ // 39 kΩ
- R4 = 18 kΩ // 2,2 kΩ
- R6 = 470 kΩ // 39 kΩ
- R7, R8 = 10 kΩ
- C1 to C4 = 1 nF
- C5, C6 = 100 nF
- IC1 = TS922 (STMicroelectronics)

Figure 9-6

- C1, C2 = 10 µF 16 V
- L1 = DCF77 receiver module antenna (f. ex. Conrad 641138)

Figure 9-11

- IC1 = TSOP34836 or TSOP1736 (Vishay Semiconductors)

Figure 9-14

- R1 = 220 Ω
- LED1 = infrared LED (scavenged from an old remote control)

Figure 9-15

- R1 = 220 Ω
- R2, R4 = 2,2 kΩ
- R3 = 680 kΩ
- C1 = 220 nF
- LED1 = infrared LED (scavenged from an old remote control)
- IC1 = TSOP34836 or TSOP1736 (Vishay Semiconductors)
- T1 = BC547C
- MIC1 = electret microphone

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Chapter 10

Figure 10-3

- R1, R2 = 10 kΩ
- S1 = rotary encoder with integrated pushbutton (f. ex. Alps EC12E2424407)

Figure 10-5

- R2 = 10 kΩ
- PH1 = photoresistor (LDR)
- BUZ1 = buzzer

Figure 10-7

- R1 = 220 Ω
- R2 = 10 kΩ
- PH1 = photoresistor (LDR)
- D1 = 1N4001
- IC1 = DS18B20 (or DS18S20) (Maxim)
- LED1 = LED red
- T1 = BD139
- RE1 = 12 V car relay
- H1 = 5-tone car horn “La Cucaracha”

Figure 10-9

- R1 = 220 Ω
- C1 = 100 nF
- D1 = 1N4001
- IC1 = MLX90614AAA (Melexis)
- LED1 = LED red
- T1 = BD139
- RE1 = 12 V car relay
- H1 = 5-tone car horn “La Cucaracha”