

**BoM, for kit building assembly**

| ref                                 | value             | Vendor                  | Vendor P/N            | NOTE1 | NOTE 2  |
|-------------------------------------|-------------------|-------------------------|-----------------------|-------|---|
| BT1                                 | BATT_RTC          | <a href="#">DigiKey</a> | 3003K-ND              |       | Battery Socket                                  |
| *                                   | 3V CR2032 Battery | <a href="#">DigiKey</a> | P189-ND               |       | LR2032 Coin Battery                             |
| C1,C2,C8                            | 100u              | <a href="#">DigiKey</a> | P833-ND               |       | Capacitor Voltage Rating >= 16V                 |
| C3,C4,C5,C6,C7,C9,C10               | 100n              | <a href="#">DigiKey</a> | 399-5863-ND           |       | Decoupling capacitor                            |
| D1 to D128                          | LED               | <a href="#">DigiKey</a> | C535A-WJN-CU0V0231-ND |       | CREE LED 5mm Cool White Clear 110deg            |
| D258                                | DBG               | <a href="#">DigiKey</a> | 1080-1134-ND          |       | Debug LED, 3mm or 5mm LED, any Color            |
| D260                                | PWR               | <a href="#">DigiKey</a> | 1080-1134-ND          |       | Power On LED, 3mm or 5mm LED, any Color         |
| J2                                  | V_IN              | <a href="#">DigiKey</a> | ED2982-ND             |       | USB-B, Socket                                   |
| K1                                  | PWR               | <a href="#">DigiKey</a> | SAM1031-50-ND         |       | Header, Male, 3 pin, for PWR_SEL                |
| *                                   |                   | <a href="#">DigiKey</a> | S9341-ND              |       | Jumper socket for PWR_SEL K1                    |
| K2                                  | LED_ENABLE        | <a href="#">DigiKey</a> | SAM1031-50-ND         |       | Header, Male, 3 pin, for LED_ENABLE             |
| *                                   |                   | <a href="#">DigiKey</a> | S9341-ND              |       | Jumper socket for LED_ENABLE K2                 |
| K4                                  | SCL               | <a href="#">DigiKey</a> | SAM1031-50-ND         |       | Header, Male, 2 pin, Link for INT, OPEN for EXT |
| *                                   |                   | <a href="#">DigiKey</a> | S9341-ND              |       | Jumper socket for SCL, K4                       |
| K5                                  | SDA               | <a href="#">DigiKey</a> | SAM1031-50-ND         |       | Header, Male, 2 pin, Link for INT, OPEN for EXT |
| *                                   |                   | <a href="#">DigiKey</a> | S9341-ND              |       | Jumper socket for SDL, K5                       |
| P7                                  | FTDI              | <a href="#">DigiKey</a> | SAM1043-50-ND         |       | Header, 6 pin, right angle                      |
| Q1 to Q17                           | 2N5401            | <a href="#">DigiKey</a> | 2N5401GOS-ND          |       | Transistor, TO-92-3                             |
| R1 to R16                           | 100               | <a href="#">DigiKey</a> | CF18JT100RCT-ND       |       | Resistor, 1/8W, 5%                              |
| R17,R18,R19,R22,R23,R31,R36,R37,R38 | 10k               | <a href="#">DigiKey</a> | CF18JT10K0CT-ND       |       | Resistor, 1/8W, 5%                              |
| R20,R21                             | 4k7               | <a href="#">DigiKey</a> | CF18JT4K70CT-ND       |       | Resistor, 1/8W, 5%                              |
| R24,R25,R26                         | 1k                | <a href="#">DigiKey</a> | CF18JT1K00CT-ND       |       | Resistor, 1/8W, 5%                              |
| R30                                 | 100E              | <a href="#">DigiKey</a> | CF18JT100RCT-ND       |       | Resistor, 1/8W, 5%                              |
| R32                                 | LDR SOCKET        | <a href="#">DigiKey</a> | A32932-ND             |       | Socket header, 2 pin, for LDR                   |
| --                                  | LDR               | <a href="#">DigiKey</a> | PDV-P9007-ND          |       | LDR, 10k to 100k                                |
| R33,R35                             | 680E              | <a href="#">DigiKey</a> | CF18JT680RCT-ND       |       | Resistor, 1/8W, 5%                              |
| R34                                 | 2k                | <a href="#">DigiKey</a> | 3352E-202LF-ND        |       | Pot, Thumbwheel, Ceramic,                       |
| SP1                                 | SPEAKER           | <a href="#">DigiKey</a> | 102-1169-ND           |       | Audio Buzzer                                    |
| SW12,SW22,SW32,SW42,SW52            | INC               | <a href="#">DigiKey</a> | 450-1650-ND           |       | Push button switch                              |
| U1                                  | STP8DP05          | <a href="#">DigiKey</a> | 497-6271-5-ND         |       | IC, Row Driver                                  |
| *                                   | Socket STP8DP05   | <a href="#">DigiKey</a> | A100206-ND            |       | Socket for IC U1                                |
| U2                                  | 7805              | --                      | --                    |       | SHORTING LINK between VI and VO                 |
| U3                                  | ATMEGA8-P         | <a href="#">DigiKey</a> | ATMEGA328-PU-ND       |       | Micro Controller                                |
| *                                   | IC ATMEGA8-P      | <a href="#">DigiKey</a> | A100210-ND            |       | Socket for IC U3                                |
| U4                                  | 74HC154           | <a href="#">DigiKey</a> | 568-1407-5-ND         |       | IC, Column Driver                               |
| *                                   | IC 74HC154        | <a href="#">DigiKey</a> | 3M5479-ND             |       | Socket for IC U4                                |
| U6                                  | DS3231N           | <a href="#">DigiKey</a> | DS3231S#-ND           |       | IC, RTC   |

**BoM, for kit building assembly**

| ref | value | Vendor                  | Vendor P/N | NOTE1 | NOTE 2                            |
|-----|-------|-------------------------|------------|-------|-----------------------------------|
| X1  | 16MHz | <a href="#">DigiKey</a> | X908-ND    |       | Resonator, with capacitors, 3 pin |

**NOT USED COMPONENTS**

|                     |           |                          |                             |          |   |
|---------------------|-----------|--------------------------|-----------------------------|----------|---|
| C11,C12             | 22p       | <a href="#">DigiKey</a>  | BC1034CT-ND                 | Optional | if using crystal instead of resonator                 |
| CD1,CD2,CD3         | CDOT1     | <a href="#">DigiKey</a>  | 3M9515-ND                   | Optional | if using I2SD, rtcBoB or ChronoDot, Socket, 4 pin     |
| DIL-U1              | STP16DP05 | <a href="#">DigiKey</a>  | 3M5479-ND                   | Optional | if using rowBoB, 24 pin IC socket                     |
| J1                  | V_IN      | <a href="#">DigiKey</a>  | H2960CT-ND                  | Optional | USB-Mini Socket                                       |
| J3                  | V_IN      | <a href="#">DigiKey</a>  | CP-002B-ND                  | Optional | Barrel socket   |
| K3                  | 7Seg_Sel  | --                       | --                          | Optional | Solder Bridge for uC pin selection                    |
| P1                  | 7SegDisp  | <a href="#">Sparkfun</a> | COM-09766                   | Optional | 7 segment 4 digit display                             |
| P13                 | ISP       | <a href="#">DigiKey</a>  | SAM1095-36-ND               | Optional | Header, 3x2 pin                                       |
| P41                 | STACK-L   | <a href="#">DigiKey</a>  | SAM1009-50-ND               | Optional | Socket, 4 pin, right angle, for daisy-chaining boards |
| P42                 | STACK-R   | <a href="#">DigiKey</a>  | SAM1043-50-ND               | Optional | Header, 4 pin, right angle, for daisy-chaining boards |
| P43                 | CONN_1    | --                       | Break Out Pad, no component | Optional | ATMega Port PC2                                       |
| SW1,SW2,SW3,SW4,SW5 | INC       | <a href="#">DigiKey</a>  | 450-1657-ND                 | Optional | Right Angle switch, for Top access                    |
| U2                  | 7805      | <a href="#">DigiKey</a>  | MC7805CTGOS-ND              | Optional | ONLY if V_IN > 5V. ELSE USE SHORTING LINK             |

**MISC. COMPONENTS**

|                 |           |  |                         |
|-----------------|-----------|--|-------------------------|
| BF1             | BAFFLE    |  | Angus Hines             |
| BP1             | BackPlate |  | Angus Hines             |
| FM1             | FRAME     |  | Ikea or None            |
| FP1             | FacePlate |  | Angus Hines             |
| P8,P9,P10,P11   | CONN_1    |  | Fixing Screw for Board  |
| P14,P15,P53,P54 | CONN_1    |  | Fixing Screw for Baffle |
| P49,P40,P51,P52 | CONN_1    |  | Fixing Screw for rtcBoB |
| rowBoB1         | CONN_1    |  | Fixing Screw for rowBoB |
| P24 to P39      | DIL6      |  | Prototyping area        |
| PCB1            | PCB       |  | Main Board, seeed       |