

# Retro Clock 2

Component Count: 33

Ref	Value	Footprint	Amazon (search)	Notes
BT1	Holder	KiCab_g2m_Lib:2032BatteryHolderHoriz		See note on U3,. Used battery holder from DS3231 board.
C1	390nF	Capacitor_SMD:C_0805_2012Metric_Pad	0805 SMD Capacitor Assorted Kit 1pF-1uF Chip Ceramic Capacitor	
C2	1uF	Capacitor_SMD:C_1206_3216Metric_Pad	1206 SMD Capacitor Assorted Kit 10P-22UF Chip Ceramic Capacitor	
C3	470uF	Capacitor_THT:CP_Radial_D8.0mm_P3.50mm	lectrolytic Capacitor 470uF 16V with Aluminum Radial Leads 470UF-16V-8X12	
C4	1uF	Capacitor_SMD:C_1206_3216Metric_Pad	1206 SMD Capacitor Assorted Kit 10P-22UF Chip Ceramic Capacitor	
C5	10uF	Capacitor_THT:CP_Radial_D4.0mm_P1.50mm	Electrolytic Capacitor 10uF 25V with Aluminum Radial Leads 10UF-25V-4X7	
C6	1uF	Capacitor_SMD:C_0805_2012Metric_Pad	0805 SMD Capacitor Assorted Kit 1pF-1uF Chip Ceramic Capacitor	
C8	100nF	Capacitor_SMD:C_0805_2012Metric_Pad	0805 SMD Capacitor Assorted Kit 1pF-1uF Chip Ceramic Capacitor	
D1	1N4148W	Diode_SMD:D_SOD-123		See U3. Used diode from DS3231 board.
H1	MountingHole	MountingHole:MountingHole_2.7mm_M2.5_DIN965		
H2	MountingHole	MountingHole:MountingHole_2.7mm_M2.5_DIN965		
H3	MountingHole	MountingHole:MountingHole_2.7mm_M2.5_DIN965		
H4	MountingHole	MountingHole:MountingHole_2.7mm_M2.5_DIN965		
H5	MountingHole	MountingHole:MountingHole_2.7mm_M2.5_DIN965		
H6	MountingHole	MountingHole:MountingHole_2.7mm_M2.5_DIN965		
H7	MountingHole	MountingHole:MountingHole_2.7mm_M2.5_DIN965		
H8	MountingHole	MountingHole:MountingHole_2.7mm_M2.5_DIN965		
J1	TFT Connector	Connector_PinSocket_2.54mm:PinSocket_1x14_P2.54mm_Vertical	40 Pin 2.54mm Single Row Straight Female PCB Header Connector Strip	Cut strip to required length - 14 pins.
J2	Power	Connector_JST:JST_XH_B4B-XH-A_1x04_P2.50mm_Vertical	JST-XH 2.54mm Connector Kit, 2.54mm Male and Female 2/3/4/5/6 Pin Header Housing Connector	
J3	Speaker	Connector_JST:JST_XH_B2B-XH-A_1x02_P2.50mm_Vertical	JST-XH 2.54mm Connector Kit, 2.54mm Male and Female 2/3/4/5/6 Pin Header Housing Connector	
J4	LDR	Connector_JST:JST_XH_B2B-XH-A_1x02_P2.50mm_Vertical	JST-XH 2.54mm Connector Kit, 2.54mm Male and Female 2/3/4/5/6 Pin Header Housing Connector	
R1	20k	Resistor_SMD:R_0805_2012Metric_Pad	0805 SMD Resistor Kit 0-10M Ω ohm	
R2	200	Resistor_SMD:R_0805_2012Metric_Pad	0805 SMD Resistor Kit 0-10M Ω ohm	Only installed if LDR option is not used.
R6	4.7k	Resistor_SMD:R_0805_2012Metric_Pad	0805 SMD Resistor Kit 0-10M Ω ohm	
R7	10k	Resistor_SMD:R_0805_2012Metric_Pad	0805 SMD Resistor Kit 0-10M Ω ohm	
R8	20k	Resistor_SMD:R_0805_2012Metric_Pad	0805 SMD Resistor Kit 0-10M Ω ohm	
R10	20k	Resistor_SMD:R_0805_2012Metric_Pad	0805 SMD Resistor Kit 0-10M Ω ohm	
R11	4.7k	Resistor_SMD:R_0805_2012Metric_Pad	0805 SMD Resistor Kit 0-10M Ω ohm	
R12	200	Resistor_SMD:R_0805_2012Metric_Pad	0805 SMD Resistor Kit 0-10M Ω ohm	
SW1	Recal Touch	Tactile-switch:FSM2JRT_gm	6x6x7mm 2 Pin Panel PCB Momentary Tactile Tact Push Button Switch Through Hole Installation	
U1	LM4890M_NOPB	Package_SO:SOIC-8_3.9x4.9mm_P1.27mm		Mouser: 926-LM4890M/NOPB
U2	ESP-WROOM-32S	If Socketed (recommended) - uses two of the following connectors Connector_PinSocket_2.54mm:PinSocket_1x15_P2.54mm_Vertical	40 Pin 2.54mm Single Row Straight Female PCB Header Connector Strip	Cut strip to required length - 15 pins. Quantity 2.

U3	DS3231M	Package_SO:SOIC-16W_7.5x10.3mm_P1.27mm	DS3231 AT24C32 Clock Module Real Time Clock Module IIC RTC Module	Ordering from Amazon is much less expensive. Although you will need to remove the DS3231 and battery holder from the board.
Plug-in Devices				
Battery	LIR2032	Rechargeable 2032 Battery, 3.7V	LIR2032 Rechargeable Batteries 3.7V with High Capacity 70mA	
TFT		2.8 inch TFT with Touch, SPI interface.	ILI9341 2.8" SPI TFT LCD Display Touch Panel 240X320	
ESP32S	ESP32S	ESP32S Module - 30 pins (2 rows of 15 pins)	ESP-WROOM-32 ESP32 ESP-32S Development Board 2.4GHz Dual-Mode WiFi + Bluetooth Dual Cores Microcontroller Processor Integrated with Antenna RF AMP Filter AP STA Compatible	
Hardware				
Screws - 6mm Qty 9		Torx Plus Rounded Head Thread-Forming Screws for Plastic, Zinc-Plated Steel, M2.26 Size, 6 mm Long	McMaster-Carr mcmaster.com	4 to mount Bezel Trim to Bezel 4 to mount PCB to Bezel 1 to mount USB Bracket to Rear Case
Screws - 8mm Qty 2		Torx Plus Rounded Head Thread-Forming Screws for Plastic, Zinc-Plated Steel, M2.26 Size, 8 mm Long	McMaster-Carr mcmaster.com	2 to mount Rear Case to Bezel
Screws - 10mm Qty 2		Torx Plus Rounded Head Thread-Forming Screws for Plastic, Zinc-Plated Steel, M2.26 Size, 10 mm Long	McMaster-Carr mcmaster.com	2 to mount USB Lock and USB Connector board to USB bracket
Glue		Either hot-glue or super-glue Decal to Bezel. Hot glue LDR to Decal.		