

ECE411 Group 5
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C.A.R.L. Drum Machine BOM

Rev. 2

| # | Item Description | Qty | Function / Notes |
|----|------------------------------|-----|---|
| 1 | 8 Ω Speaker | 1 | Audio output |
| 2 | Clear Plastic NO pushbuttons | 17 | Momentary inputs for user control |
| 3 | Red LEDs | 8 | Visual feedback for downbeat notes |
| 4 | Yellow LEDs | 8 | Visual feedback for backbeat notes |
| 5 | Green LED | 1 | Playback indicator / metronome visualization |
| 6 | Orange LED | 1 | MOD button indicator |
| 7 | Potentiometers | 4 | Control parameters (volume, tempo, filtering) |
| 8 | 20x5 LCD Display | 1 | System information display (voices, patterns) |
| 9 | Speaker Op-Amp | 1 | Amplifying speaker output |
| 10 | Fuses | 8 | Current fluctuation protection |
| 11 | E-pin Jumpers | 4 | Debugging / circuit-level isolation |
| 12 | Knobs | 4 | Potentiometer control |
| 13 | 3.5 mm Audio Jack | 1 | Output for external audio device |
| 14 | 2.5 mm Barrel Jack | 1 | DC power input port |
| 15 | 9V Battery Terminals | 2 | Battery power input ports |
| 16 | LED Driver | 1 | Arbitrate LED brightness and sequencing |
| 17 | 3.3/5 V PS/MP Board | 1 | Power supplier / main control board |
| 18 | SD Card Reader | 1 | External memory interface |
| 19 | ESP32 Processor | 1 | Primary logic controller |