Subject: PCB Hardware RFQ for Magfest 2026 Swadge September 17 2025

To: Roy@elecrow.com

Summary of Request:

Qty 2500 pcs assembled, flashed and tested with acrylic piece, two identical PCBs except solder mask color, specified below.

There is a BOM difference between the BLACK and BLUE PCBs. See included BOMs.

Please quote HASL Lead Free finish.

Please use existing inventory from the 2024 swadge order first from the 015-Magfest warehouse and deduct the cost of materials accordingly.

PCB Properties:

1. Two layer board
2. Two-side assembly
3. 1.6mm FR4
4. Qty 700 **BLUE** solder mask and associated BOM
5. Qty 1800 **BLACK** solder mask and associated BOM
6. White silkscreen on both
7. V-groove where possible, avoid sharp edges wherever possible. We want to approve tooling locations
8. 1oz Copper
9. Silkscreen should be sharp, not splotchy

Acrylic Properties:

1. One piece of acrylic per-PCB, mockup image is shown below in Assembly section
2. Matte Transparent (P422)
    a. “Winter Melon White”
    b. Edge should be matte, not clear
3. 3mm thick
4. No engraving

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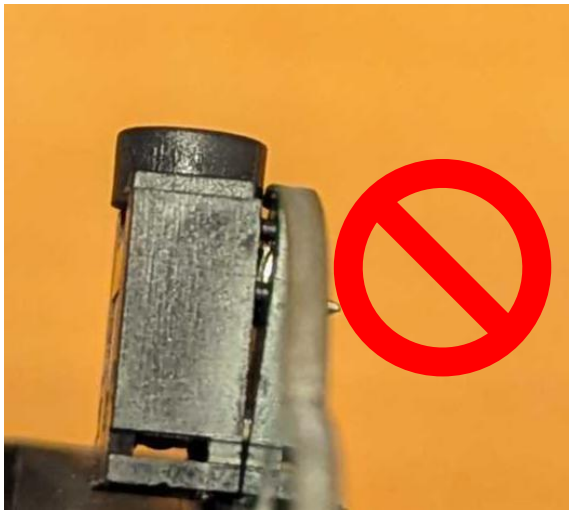
Assembly Information:

There are 8 THT parts. These parts shall have their leads clipped close to PCB. See notes below.

Through hole leads shall not be sharp.

1. 3x AA holder -> BT1, BT2, BT3
    a. Be sure that there are no cold or partial solder joints. There have been issues in the past with these joints.
2. 1x Headphone Jack -> J2
    a. The jack has a lip that should overhang the pcb. Example of one that doesn't is shown below. This should overhang correctly and sit flush.



3. 1x Speaker -> U9
    a. Speaker leads are polarized; + hole is clearly marked on both sides of the board silkscreen and must be oriented correctly.
4. 1x Switch -> SW6
    a. No specific notes for this component
5. 1x 3x2 Pin Socket -> J1
    a. No specific notes for this component
6. 1x Volume control knob -> RV1
    a. No specific notes for this component

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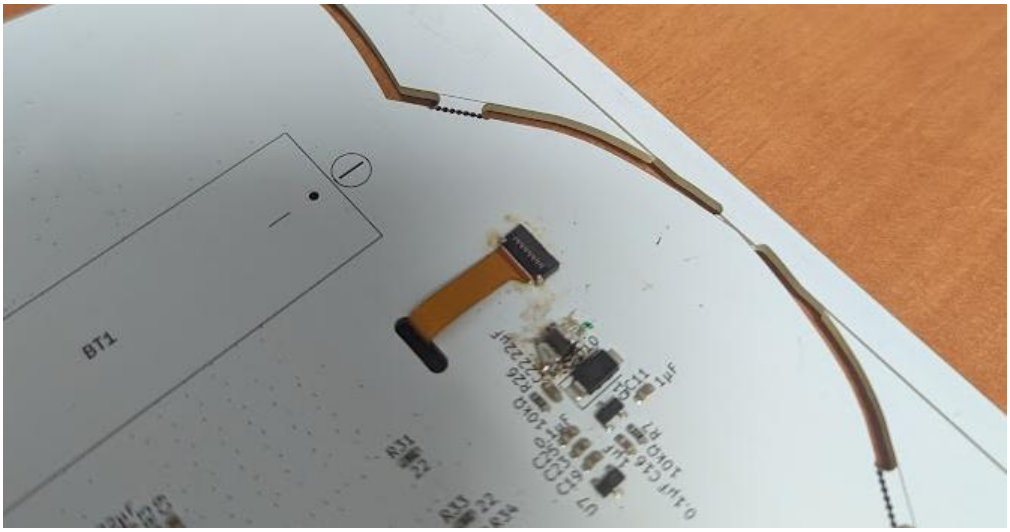
Screen Assembly:

LCD ribbon shall first be looped through the notch provided in the PCB. Please review photos:

FPC cable connection is on the back of the board.



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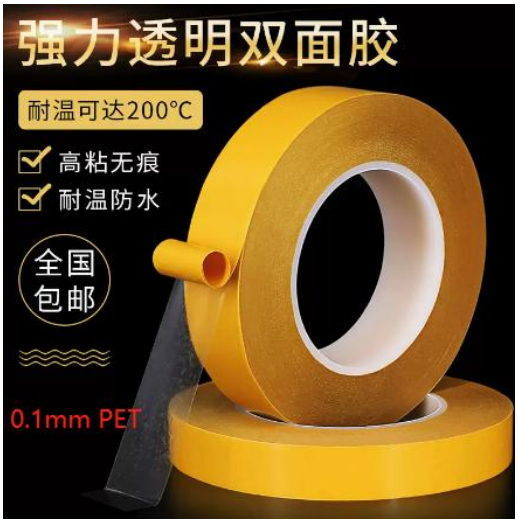
The ribbon cable shall have no twists to be installed – it is simply a fold through the hole to the other side of the board.

LCD shall be taped down after plugging in using double sided tape to PCB. Please use clear, thin, double-sided tape like this 0.1mm PET:



LCD should land approximately within the silkscreen bounds drawn and be straight.

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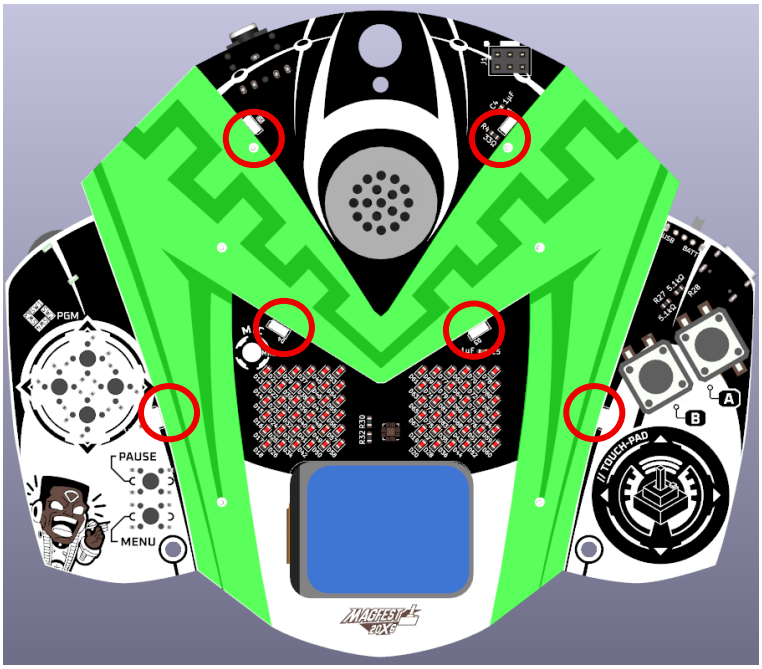
Acrylic Assembly:

Acrylic must have protective paper peeled off and taped to PCB using the same double-sided tape as the display. Acrylic will be approximately flush with the board edges.

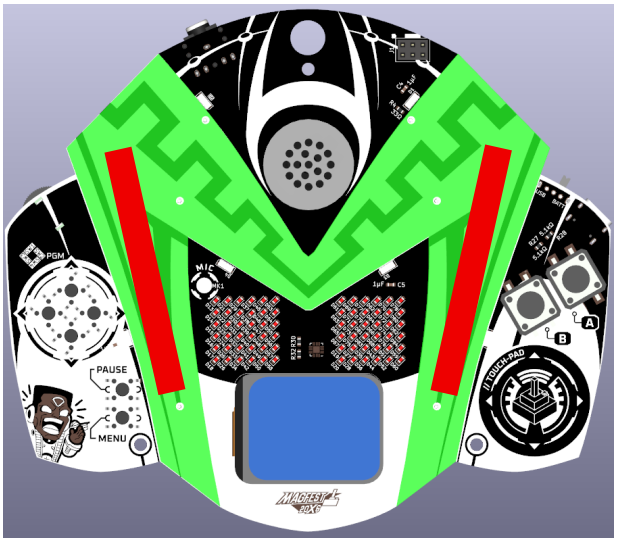
Image of Acrylic, highlighted in green. LEDs are adjacent to the acrylic in the circled locations:



It is recommended to apply two pieces of tape in the following general locations underneath the acrylic, shown as rectangles in red. **Do not use glue.**

Tape dimensions for the acrylic shall be as follows:

- No greater than 7mm in width
- 45mm in length



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Programming:

1. A Python programming script will be provided.
2. The boards connect with USB-C and do not require external programming hardware
3. The programming script can program many units in parallel
4. Each unit is programmed in ~15 seconds

Instructions will be provided.

Testing:

1. Each unit will be tested after programming.
2. Testing involves pressing all buttons and validating the display and LEDs.
3. We also have an IMU calibration step which requires the device be held on its face, then its back for 5 seconds each. Then held upright, and upside down for 5 seconds each.

Detailed instructions and video will be provided.

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Schedule:

Supplier deliveries:

August 5 2025: SZLED shipped qty 20,000 of 4020RGB LEDs to Elecrow
September 5 2025: Ronbo Electronics shipped 2,500 of RB017A1505A-CG01A LCD to Elecrow

Manufacturing Timeline:

Week 0:

September 9, 2025: RFQ Submitted by MAGFest to Elecrow

Week 1:

September 16, 2025: Quote completed and returned to MAGFest.

Upon Receipt of quote or prior: MAGFest will submit final documents to Elecrow

September 19, 2025: MAGFest will pay Elecrow for samples and full order.

September 19, 2025: Elecrow will purchase components for a full 2500 order.

Week 2:

September 26, 2025: MAGFest will provide **basic** test firmware for boards.

Week 5:

October 14, 2025: Elecrow will send MAGFest QTY 10 PCBs as samples, via DHL ASAP.

Please do not use re-shipper.

To avoid delays, any components that could not be sourced in time may be unpopulated, we have spares in the USA. Please check with us first.

Week 7:

October 31, 2025: MAGFest will provide feedback needed and will approve the final order of 2500.

Week 10:

November 11, 2025: MAGFest will provide FINAL firmware to be flashed to all units OR direct Elecrow to flash test firmware only at or before this date.

Week 13:

December 2, 2025: Elecrow will ship MAGFest full 2500 order via DHL ASAP.

Please do not use reshipper.

Expect delivery in Maryland, USA **on or prior to December 15 2025.**

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Changelog:

Added RV1 to list of THT components
Added Length and Width of acrylic tape