R1 Robot Bill Of Materials

Electronic Components

- **Yoton Y3 Mini Projector:** Link
  The Robot is designed to use this specific projector. Other Mini Projectors may work, but this cannot be guaranteed.
- **T95 Super Android TV Box:** Link
  This is the Robot's computer. Alternative Android TV boxes, such as the T95 Mini, may work, but this cannot be guaranteed.
- **Genuine Arduino Uno R3:** Link
- **Elegoo Arduino Uno R3:** Link
  Generic Uno R3 models, like the Elegoo model, can also work if you are familiar with Arduino.
- **28BYJ-48 Stepper Motor & ULN2003 Driver Board:** Link
  The robot only needs one of each, but they are sometimes cheaper and more readily available to purchase as a package.
- **Mini Breadboard 170 Point:** Link
  This is the recommended size breadboard to use with the R1.
- **LM393 3-Pin Arduino Sound Level Sensor:** Link
  (Two Sensors Required) It is advised to use the 3-Pin LM393-based sound level sensors. If you are familiar with Arduino, you may also adapt the 4-Pin sensors.
- **Arduino Jumper Wires:** Link
  The Robot needs 12 M-F and 2 M-M 20CM Jumper wires.
- **Generic USB Microphone:** Link
  Any universal microphone should work with the Robot's computer, but this cannot be guaranteed.
- **1 foot HDMI Cable:** Link
  A 1-foot HDMI cable is easy to neatly tuck behind the robot.
- **Right-Angle Male to Female HDMI Adaptor:** Link
  Either the 90 or 270-degree adaptors will work as the cable will reach on either side.
- **USB A to USB A Cable:** Link
  This is to transfer the software from your computer to the Robot's computer. If you plan to use ADB to transfer files instead, this cable is not necessary.

Hardware

- **3mm thick 6"x4" Acrylic Mirror:** Link
  (Two Mirrors Required) For the DIY Kit R1, both mirrors are the same size, as opposed to the larger rear mirror displayed in the instructions. Any 3mm thick 6" by 4" mirror should work. Some multi-

pack mirrors on Amazon may appear to be the right size, but are really 3.9" by 5.9" and will not fit in the robot. Using these would require modifying the robot's mirror holders.

- **10 mil Mylar Sheet 12 x 12 inch Milky Translucent PET:** Link
  This material allows the face to be projected on the robot. Other materials may work, but 10mil milky translucent PET has worked well in prototyping.
- **Hex Socket Head M4 Screw and Nut Set:** Link
  Most of the Robot’s assembly requires M4 sized hardware.
- **Hex Socket Head M2, M3, M4 Screw and Nut Set:** Link
  Some M2 and M3 hardware is also necessary, and this also supplies extra M4 hardware if needed.
- **4mm Nylon Spacer for Sound Level Sensor:** Link
  This is not required as the sound level sensors can mount directly to the front crossmember, but these spacers allow the sensors to sit at a better angle.
- **Two 1kg Rolls of 3D Printer Filament of Your Choosing:** Link
  There is no specific recommendation for filament type. Choose any color and material you prefer; two 1kg rolls should be plenty. Esun PLA Plus has been reliable in prototyping.

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