

Simplified Step-by-Step Instructions for Assembling the Bluetooth Audio Circuit

Step 1: Set Up the Voltage Regulator (78L05)

- Connect **12V IN** to the input pin of the 78L05.
 - Connect **GND** to the ground pin of the 78L05.
 - Connect **5V OUT** to the Bluetooth module's **5V** pin.
(Teacher note: Emphasize correct orientation of the 78L05 to avoid damage.)
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Step 2: Connect the Bluetooth Module

- Attach the **5V** and **GND** pins of the Bluetooth module to the 78L05 regulator.
 - Identify the **L/R outputs** for later connection to the amplifier.
(Teacher note: Make sure students know how to identify Bluetooth module pins.)
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Step 3: Wire the PAM8610 Amplifier Module

- Connect **12V IN** on the PAM8610 to the 12V power supply.
 - Connect **GND** to the common ground.
 - Link the **L/R inputs** on the amplifier to the **L/R outputs** of the Bluetooth module.
(Teacher note: Remind students to use the correct polarity for L+/L- and R+/R-.)
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Step 4: Add the Potentiometer (Volume Control)

- Connect the **input side** of the potentiometer to the **L/R outputs** of the Bluetooth module.
- Connect the **output side** of the potentiometer to the **L/R inputs** of the PAM8610 amplifier.
(Teacher note: Demonstrate how the potentiometer adjusts volume.)



Step 5: Connect the Speakers

- Attach the speaker wires to the amplifier's output terminals:
 - **L+/L-** for the left speaker.
 - **R+/R-** for the right speaker.
(Teacher note: Check if students match the correct terminals to avoid reversed polarity.)
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Step 6: Test the Circuit

- Power the circuit with the 12V supply.
 - Pair the Bluetooth module with a device and play audio to test.
(Teacher note: Encourage students to check connections before powering on to prevent errors.)
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Optional: Add a Mute Switch

- Wire a switch to the **mute pin** on the PAM8610 module for silencing the speakers.
(Teacher note: This step is optional, depending on time and student experience.)

