

Design a Circuit Board with KiCad

Schematic

- Create a New Project and open the Schematic Editor
- Add components with **a** and Power ports with **p** (keybindings)
- Mouse over parts and **move**, **rotate** and flip (**x**, **y**) them
- Wire up parts **w**, and undo fixed segments with **Backspace**
- Set values **v** and run the Footprint Assignment tool
- Run Electrical Rules Check (ERC)
 - fix all errors and understand all warnings

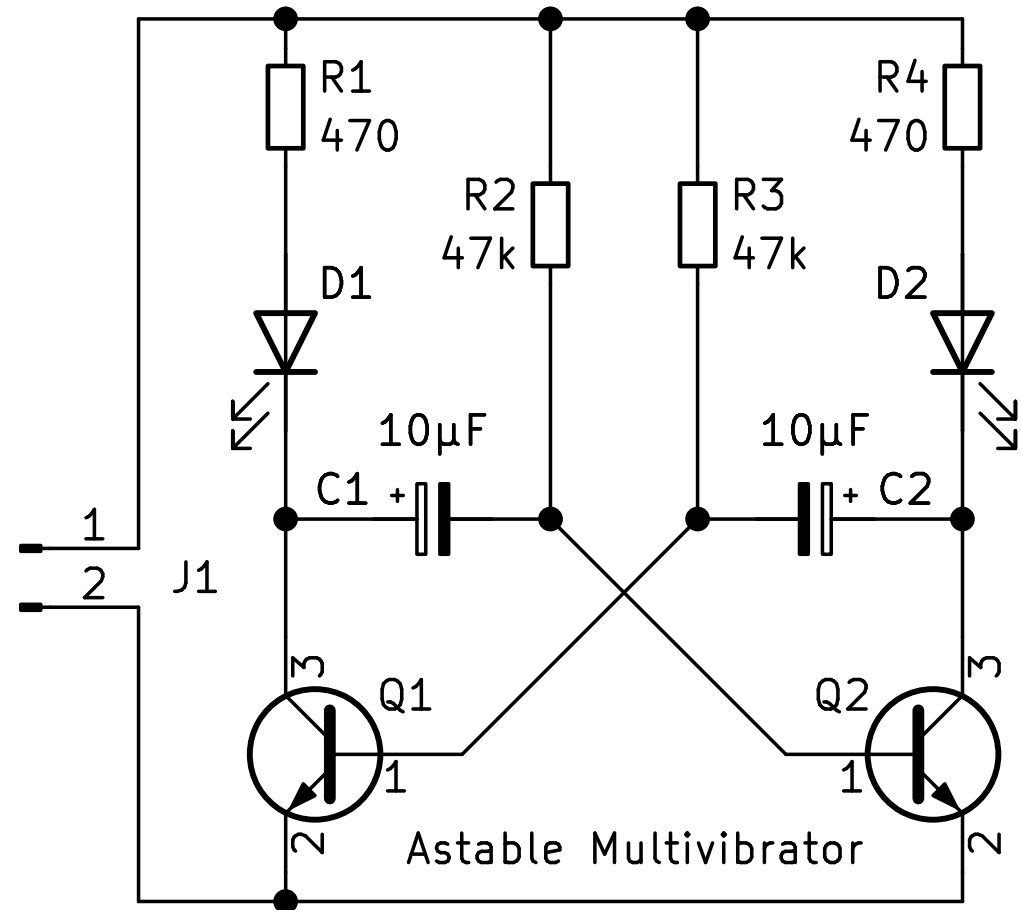
Board

- Open the PCB Editor and Update the PCB
- Select a Grid size **n**, **Shift+n**; set the Interactive Router to Shove
- Move parts with **m**, flip to bottom, **rotate**
- Route tracks with **x**, place vias and switch active layer with **v**
- Attempt finishing a track in progress or **Shift+f** for several pads
- **Delete** track segments and **Shift+Del** entire tracks
- Draw a board outline on the *Edge.Cuts* layer
- Run DRC, fix errors and understand warnings
- Clean up the *Silkscreen* layers
- Generate Gerber files, inspect them with a Gerber Viewer

Hints

- Exit a tool with **Esc** (possibly multiple times)
- **e** to Edit an object works almost everywhere
- This workflow is just one, there are many ways to achieve the same result
- Some distros have separate packages for symbols, footprints and 3D models. Install them.

Sample schematic



Matching KiCad Symbols to [Footprints]

- **R** (Resistor R1..R4) [**R_0805...**]
- **LED** (D1, D2) [**LED_0805...**]
- **C_Polarized** (Capacitor C1, C2) [**CP_Radial_D5.0mm_P2.00mm**]
- **BC817** (Q1, Q2) (fully specified – means it comes with a footprint)
- **Conn_01x02** (J1 (pins 1 and 2)) [**Connec...2.54:PinHeader_1x02_P2.54**]