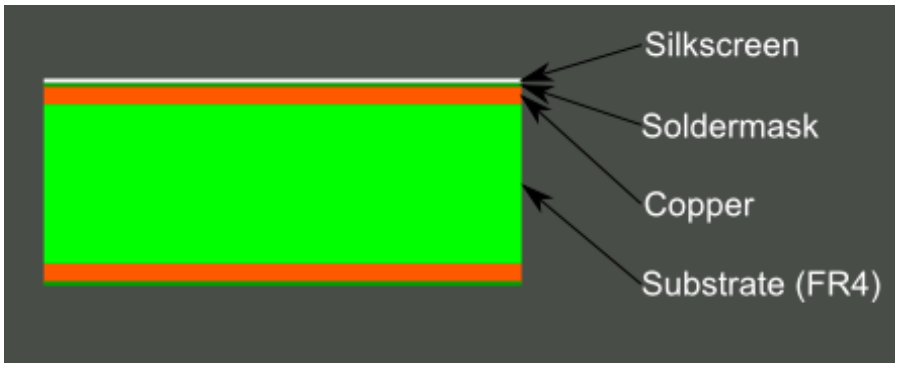
PCB FABRICATION

Printed circuit board is the most common name but may also be called printed wiring boards or printed wiring cards. Before the advent of the PCB circuits were constructed through a laborious process of point-to-point wiring. This led to frequent failures at wire junctions and short circuits when wire insulation began to age and crack.

A significant advance was the development of wire wrapping, where a small gauge wire is literally wrapped around a post at each connection point, creating a gas-tight connection which is highly durable and easily changeable.

As electronics moved from vacuum tubes and relays to silicon and integrated circuits, the size and cost of electronic components began to decrease. Electronics became more prevalent in consumer goods, and the pressure to reduce the size and manufacturing costs of electronic products drove manufacturers to look for better solutions. Thus was born the PCB.

PCB is an acronym for printed circuit board. It is a board that has lines and pads that connect various points together. In the picture above, there are traces that electrically connect the various connectors and components to each other. A PCB allows signals and power to be routed between physical devices. Solder is the metal that makes the electrical connections between the surface of the PCB and the electronic components. Being metal, solder also serves as a strong mechanical adhesive.



There are three types of PCB:-

1. *Single Sided Board* This is the least complex of the Printed Circuit Boards, since there is only a single layer of substrate. All electrical parts and components are fixed on one side and copper traces are on the other side.
2. *Double Sided Board* This is the most common type of board, where parts and components are attached to both sides of the substrate. In such cases, double-sided PCBs that have connecting traces on both the sides are used. Double-sided Printed Circuit Boards usually use through-hole construction for assembly of components.
3. *Multi Layered Board* Multi layered PCB consists of several layers of substrate separated by insulation. Most common multilayer boards are: 4 layers, 6 layers, 8 layers, and 10 layers. However, the total number of layers that can be manufactured can exceed over 42 layers. These types of boards are used in extremely complex electronic circuits.

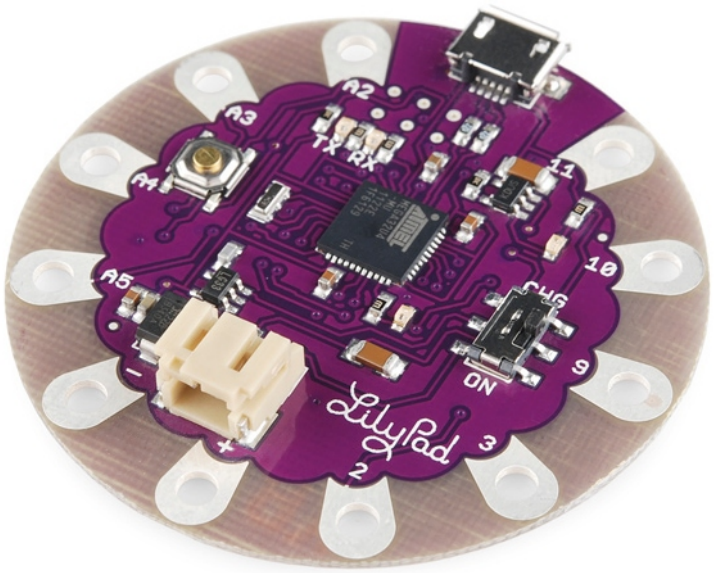


Figure 1: a lilypad PCB