

Background

The global Printed Circuit Board (PCB) manufacturing market is widely expanding, averaging at \$62 billion per year with growing demands for smartphones, tablets, and wearable electronics. These growing markets are extremely dependent on the ability to prototype effectively and efficiently. Businesses, large and small, require access to quick-turnaround manufacturing methods to iterate their designs and be first-to-market with their products. Those that have the ability to build and test a product within a short amount of time have a highly competitive edge. For many, long lead times and the high cost of outsourcing PCB prototyping keeps that competitive edge out of reach.

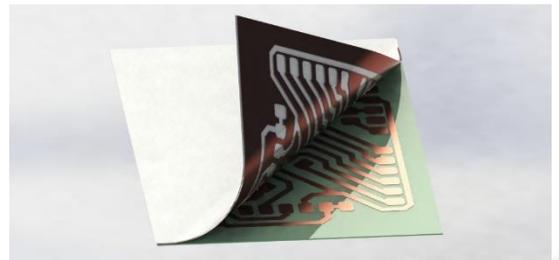
The fact is that current PCB manufacturing and prototyping methods do not meet the basic needs of professionals, hobbyists, and students alike. PCB designers need a prototyping platform that is fast, simple, robust, and low cost. Ideally, that platform needs to offer functional PCB's quickly without the need for specialized equipment, and should be simple enough to be used by all skill levels.

The commercial market needs a revolutionary PCB prototyping platform that can change the industry by offering a quick-turnaround prototyping method that offers more advantages for all types of designers.

Description

Rapid PCB Prototyping by Selective Adhesion offers a simple solution that meets the needs of PCB designers and expands creative possibilities. This technology can be used in a standard office or home setting with no more than widely available consumer hardware, and there is no need for conductive ink, photoetching, chemical deposition, or milling processes. The Selective Adhesion process only requires the knowledge of how to print the desired circuit image.

The preferred embodiment of this technology is a multi-layered pre-form page consisting of flexible insulating materials, conductive foil, and curable adhesive layers. The multi-layered page is printed with an image of the desired circuit design which defines the Selective Adhesion process. After the adhesive curing process, the circuit traces are mechanically separated by peeling layers apart and the page instantly becomes a fully functional *flexible* PCB.



This technology may be customized for a wide variety of applications and offers flexibility for post-processing. The PCB prototype may be cut, punched, layered, laminated, bent, soldered, or combined with standard surface mount and leaded components. The resulting PCB can be used as a standalone circuit or may be bonded to any 2D or 3D surface (e.g. other electrical products, packaging, clothing, skin, etc.).

Competitive barriers are very limited because of the technology's adaptability and low cost. Technologies like conductive inks are expensive and in many cases have limited application, require special hardware, and are ultimately not solderable to components. Photoetching, chemical deposition, and milling operations require a special skill set and expensive equipment, but by utilizing Selective Adhesion technology manufacturing PCB's can be done by anyone.

Rapid PCB Prototyping by Selective Adhesion allows PCB designers to develop and test a variety of circuit types for a host of applications without requiring complicated processes, outsourcing, or large investments. This technology opens the PCB prototyping market to millions of professionals, hobbyists, and students.

Advantages

Rapid PCB Prototyping by Selective Adhesion has many advantages over past methods. Primarily, the advantages stem from the ability to produce a robust and solderable PCB within minutes, but the technology also offers numerous other benefits.

Photoetching, chemical deposition, and milling processes are only available by outsourcing or through large capital investments, and typically require long lead times. Conductive ink technology falls short in meeting the needs of designers because it is limited in application, durability, and solderability.

Selective adhesion technology cuts the time of prototyping down to minutes, is durable enough for final product use, and is solderable. It can also be used in large or small scale production, product development prototyping, and offers inexpensive options for educators and hobbyists. There is no other technology on the market that makes immediate and inexpensive PCB prototyping available to everyone.

Applications

Rapid PCB Prototyping by Selective Adhesion can be applied to nearly all electronic device markets. A few of the largest markets include:

- Rapid Prototyping
- Personal Electronics
- Medical Devices
- Student and Educational
- Do-It-Yourself Electronics, Hobbyists

Intellectual Property Status

This technology is protected under US Patent # 9,504,148.

Keyword List

Rapid Prototype, PCB, Circuit Boards, DIY, Flex Circuits, Low Cost

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Honeywell

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