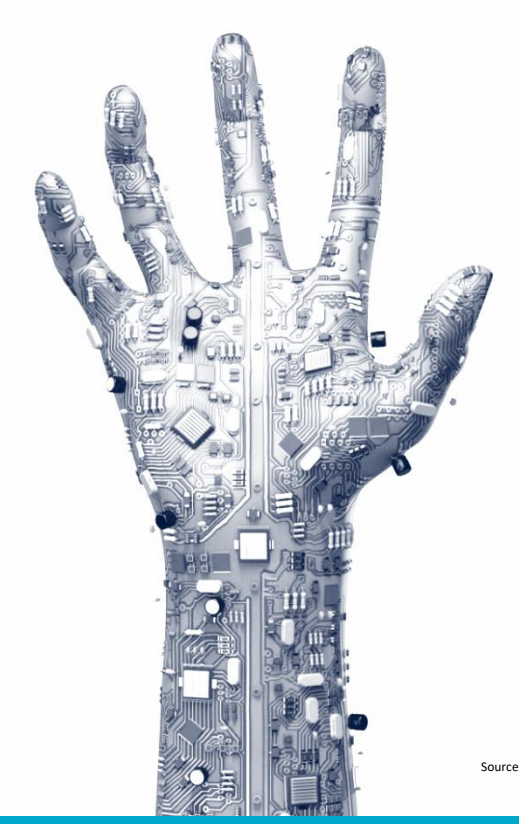


Source: Mark Berry Aberdeen Strategy Research

SOLDERING AND PCB DESIGN

DAY 2

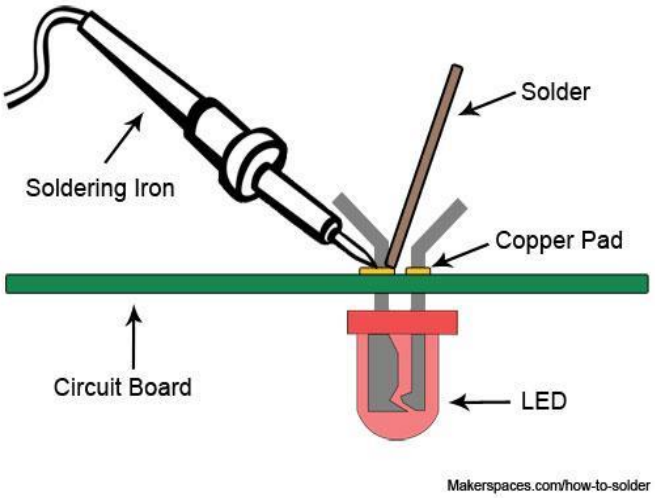
SOLDERING

OBJECTIVES

1. To know about the Soldering
2. Familiarization with tools and components required for soldering
3. What to do and What not to do
4. Constructing a simple circuit in Matrix Board

What is Soldering?

Soldering is a joining process used to join different types of metals together by melting solder. Solder is a metal alloy usually made of tin and lead which is melted using a hot iron. The iron is heated to temperatures above 600 degrees Fahrenheit, which cools to create a strong electrical bond. It is the most important skill to learn before designing PCB circuit. Soldering makes quick and neat connections to electronics equipment and plumbing. Soldering may require more practice, skills and some perfect knowledge for doing it



Tools Used for Soldering

1. Soldering Iron

A **soldering iron** is a hand tool used in soldering. It supplies heat to melt solder so that it can flow into the joint between two workpieces.

A soldering iron is composed of a heated metal tip (the *bit*) and an insulated handle. Heating is often achieved electrically, by passing an electric current (supplied through an electrical cord or battery cables) through a resistive heating element.

2. Soldering Wire

Soldering wire is a fusible metal alloy used to create a permanent bond between metal workpieces. Solder is melted in order to wet the parts of the joint, where it adheres to and connects the pieces after cooling. Metals or alloys suitable for use as solder should have a lower melting point than the pieces to be joined

3. Soldering Stand

A soldering iron stand **keeps the iron away from flammable materials**, and often also comes with a cellulose sponge and flux pot for cleaning the tip.

4. Flux

Flux aids in soldering and desoldering processes by removing oxide films that form on the surface of metals being soldered. It increases the wetting ability of the solder, causing it to flow more uniformly over surfaces without balling up.

Why soldering?

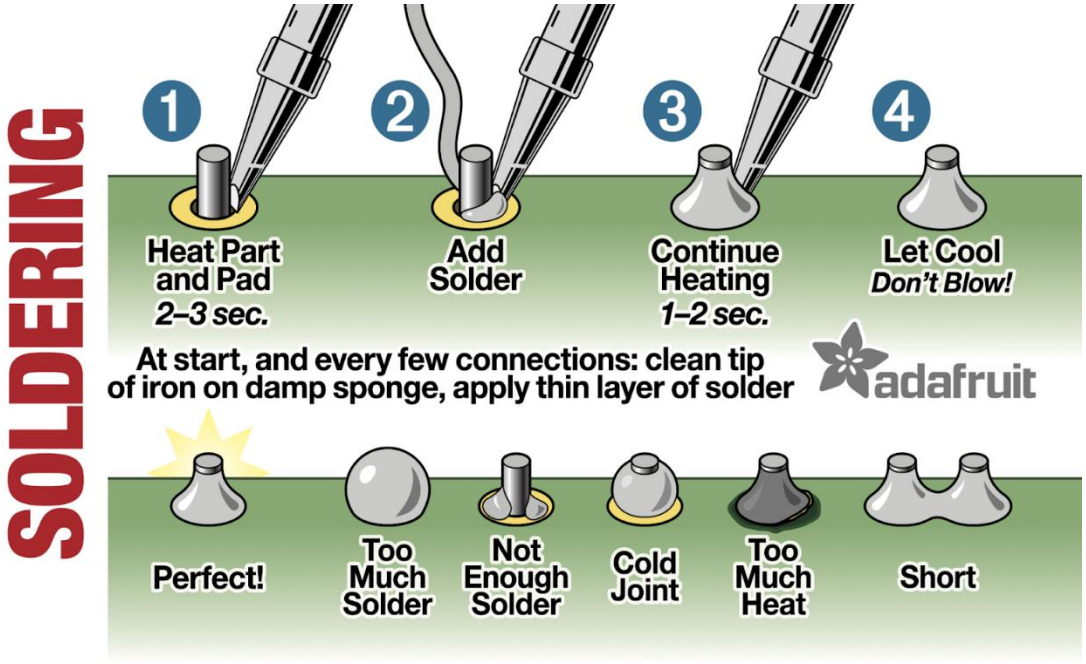
1. Any metals and non-metals can be joined by this process. Hence, this can be very useful in designing a circuit.
2. It is simple, low cost, flexible, economical, and user-friendly.
3. Dissimilar material may be joined.
4. Low process temperature

Things to know before you start soldering:

1. Heavy metals cannot be welded by this operation.
2. There is a chance of toxic components at fluxes.
3. You need to be very careful about the removal of flux residuals in order to prevent corrosion.
4. The large section cannot be joined. Soldering is for joining small metal portions.
5. Skilled labor is required for soldering.

What to do!

Remove the soldering wire first after the Soldering. Then after you can remove the iron.



We provided the introductory practice to soldering.
Now its your turn to take it further
Go out there, buy your first solder iron and start soldering
(Bange Muda, Asan New road)
Best of Luck!!!!!

See you guys tomorrow