EE3704   Embedded System
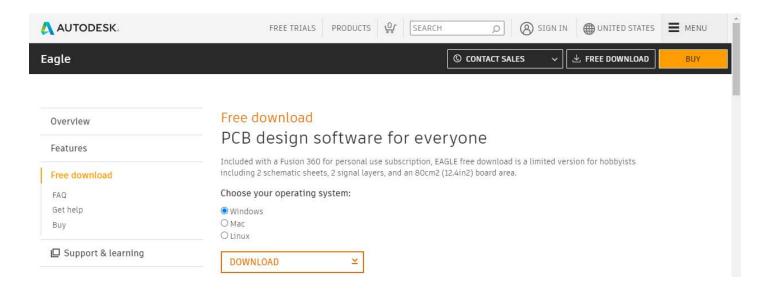## *Chapter 6.5*

Presented by

Asst. Prof. Dr.Narong Aphiratsakun
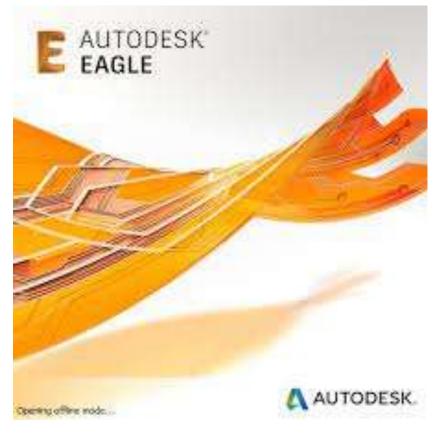
Chapter 6.5 : PCB Design
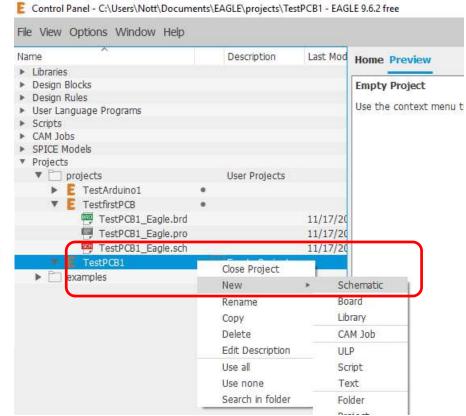
Chapter 6.5 : AutoDesk

https://www.autodesk.com/products/eagle/free-download?plc=F360&term=1-YEAR&support=ADVANCED&quantity=1

Chapter 6.5 : AutoDesk Eagle

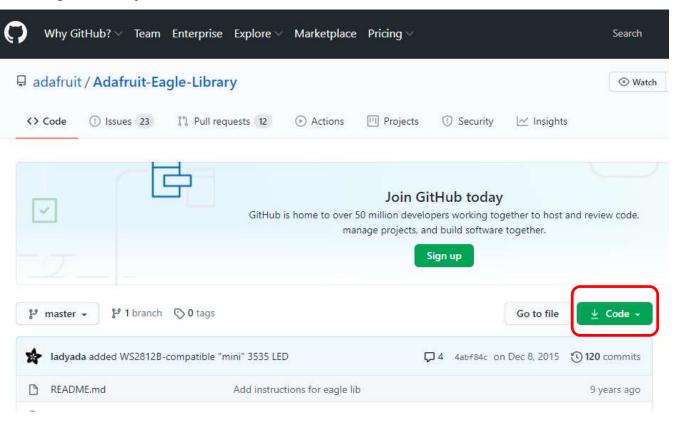# Chapter 6.5 : Adding project

Create New Schematic

Chapter 6.5 : Downloading library

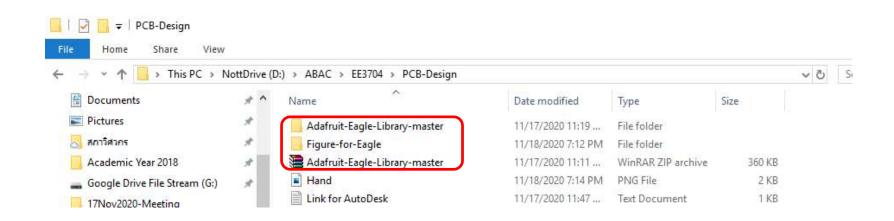https://github.com/adafruit/Adafruit-Eagle-Library
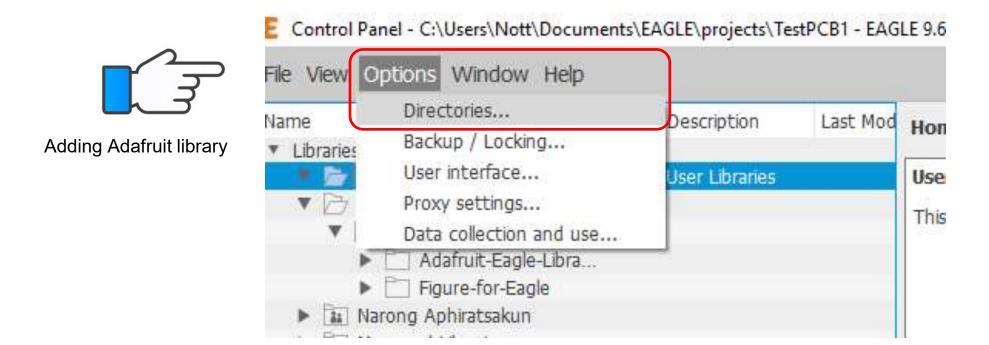
Download Adafruit Eagle
library

Chapter 6.5 : Adding library

Extracted in your directive folder
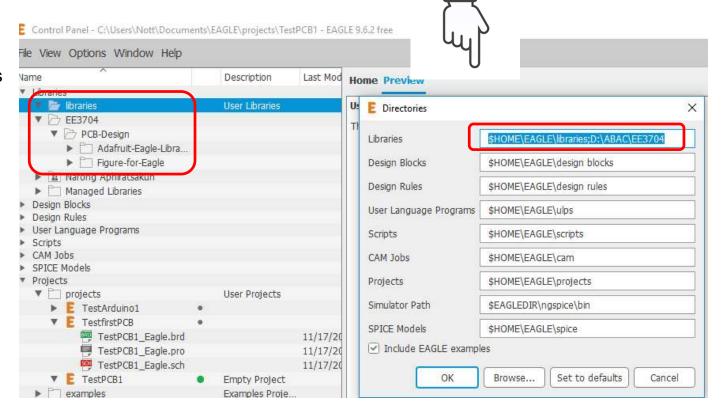
Chapter 6.5 : Adding library

Adding Adafruit library

Chapter 6.5 : Adding library

Select the directive folder

Under Libraries

Chapter 6.5 : Adding library

Select "use all"
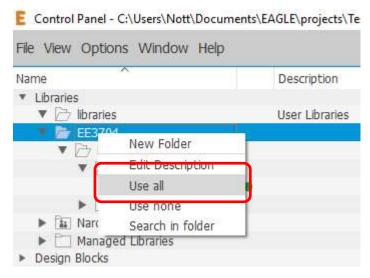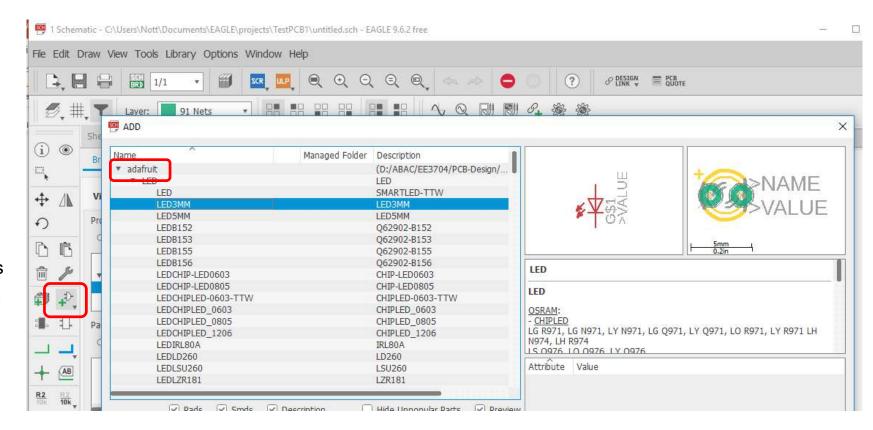
Adafruit library added
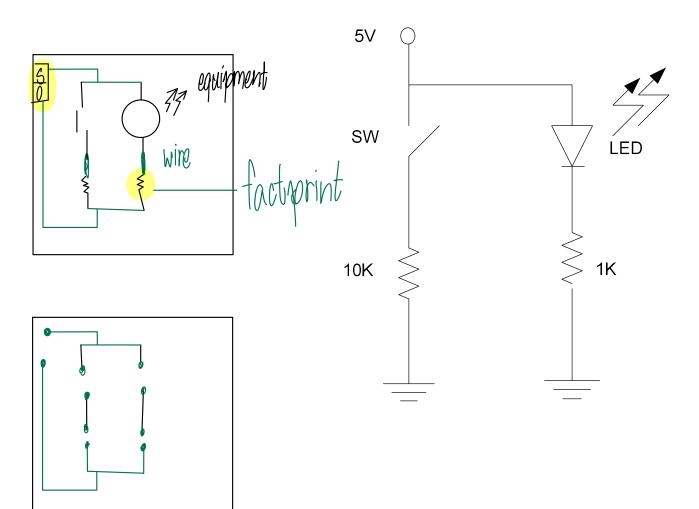
Chapter 6.5 : Adding parts after library added

Add parts

equipment

wire

factprint
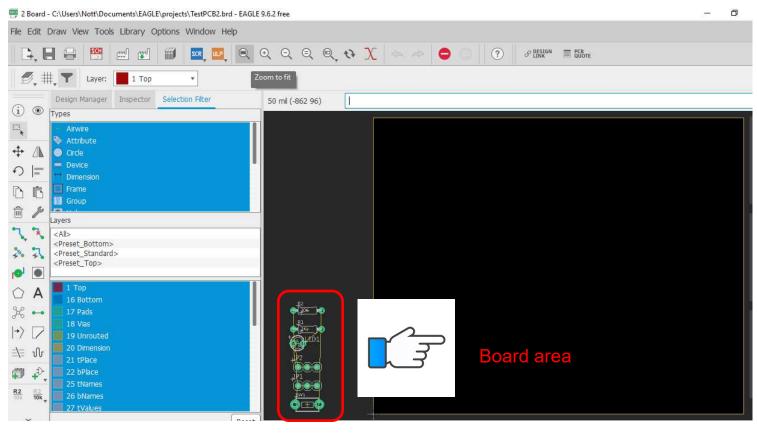
5V

SW

LED

10K

1K
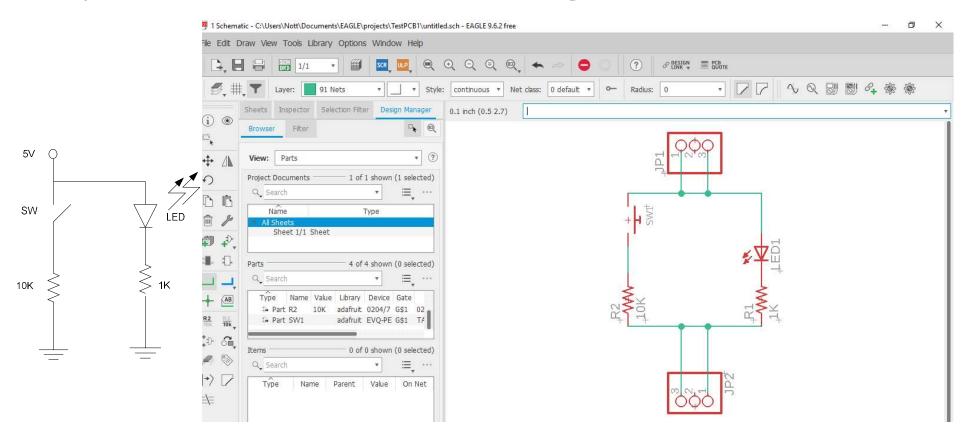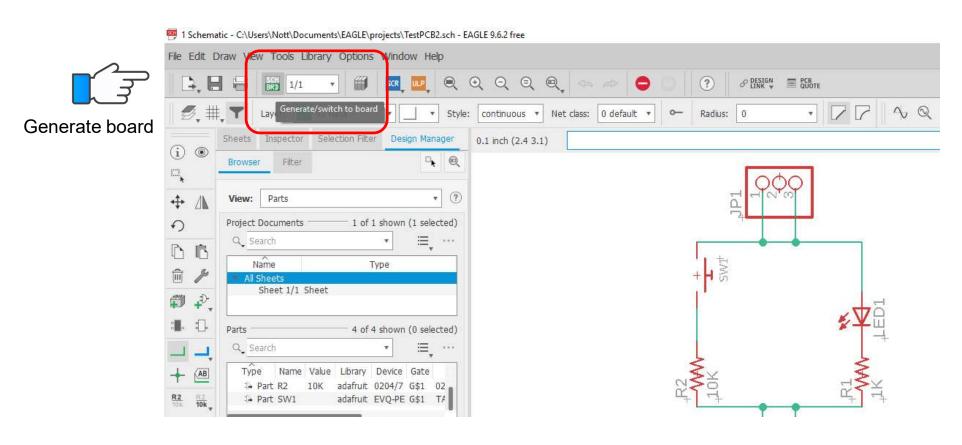
Chapter 6.5 : Draw the schematic diagram

Chapter 6.5 : Generate to PCB

Generate board
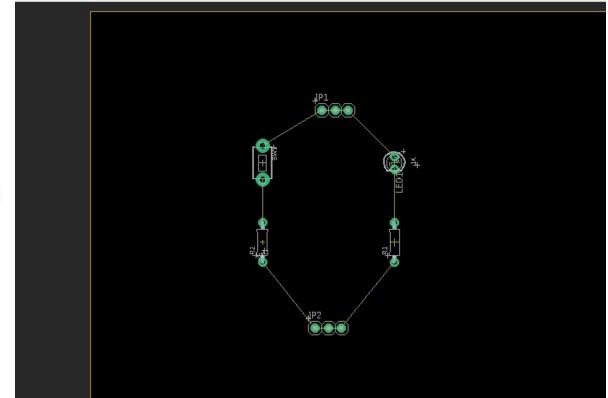
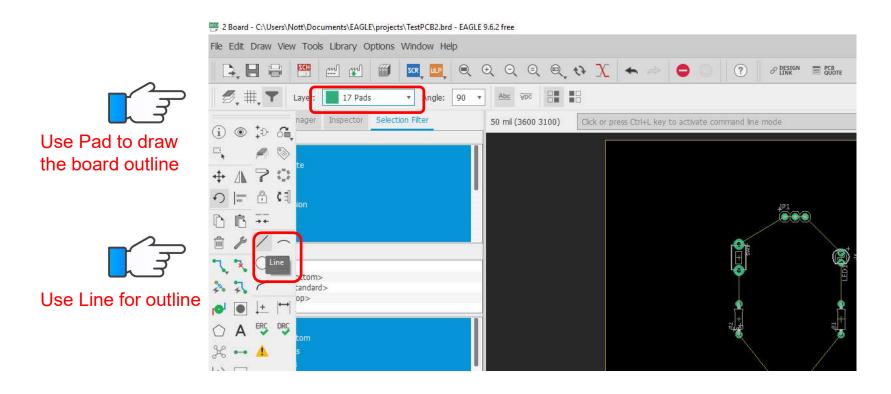# Chapter 6.5 : Arrange the PCB layout

Chapter 6.5 : Arrange the PCB layout

Arrange layout in the area

Chapter 6.5 : Draw the board outline

Use Pad to draw
the board outline

Use Line for outline
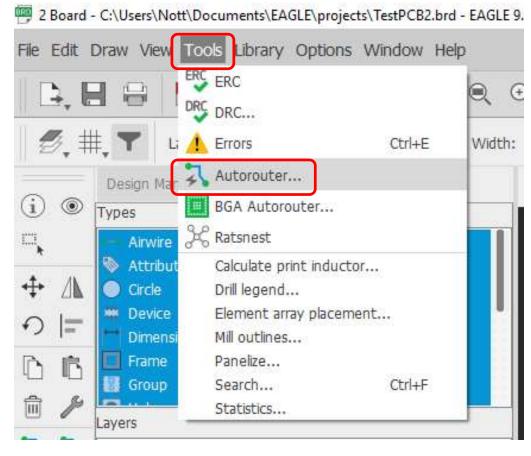
Chapter 6.5 : Net Classes set up

Choose Net Classes

Set Net
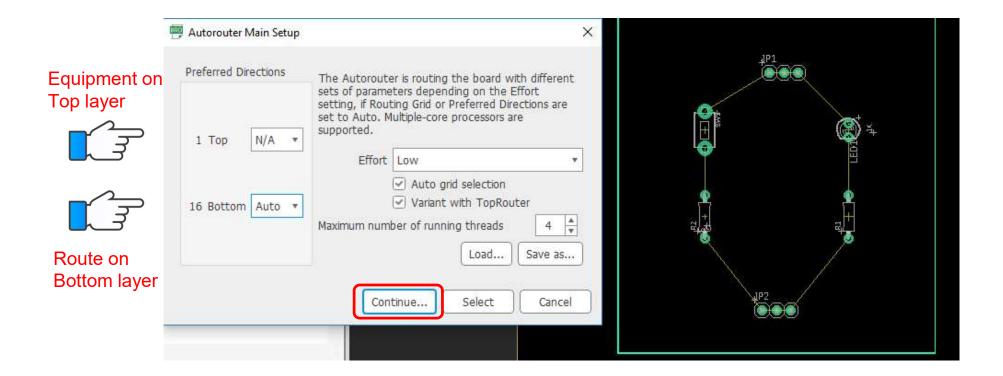
Chapter 6.5 : AutoRoute

Tools

Auto Route

Chapter 6.5 : Route at Bottom layer

Equipment on
Top layer

👉

👉

Route on
Bottom layer
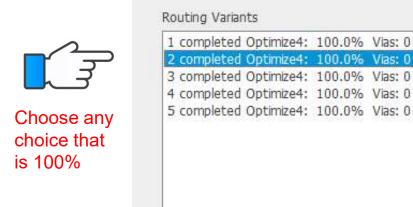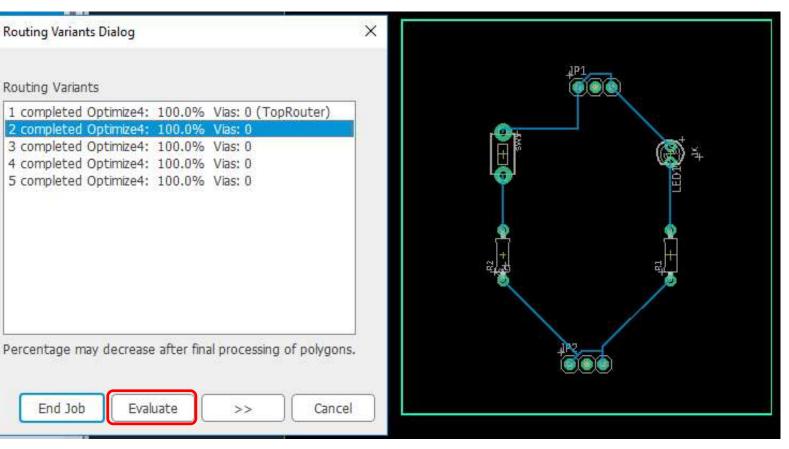
Chapter 6.5 : Choose the design

👉

Choose any choice that is 100%
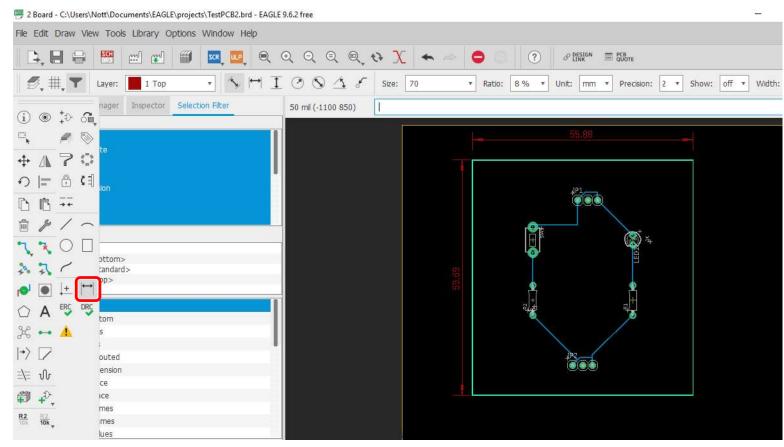
Chapter 6.5 : Board dimension

Dimension
of the board

Chapter 6.5 : Text on PCB
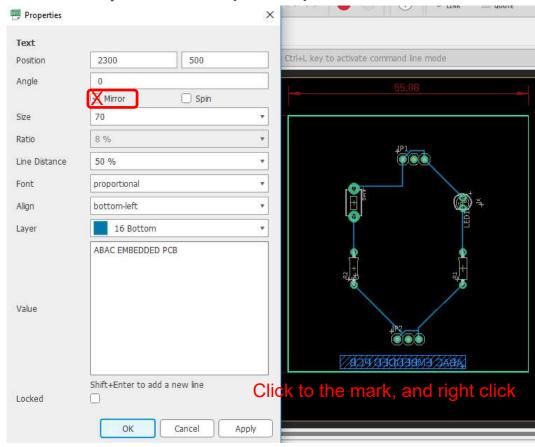
Add text to the
board bottom layer

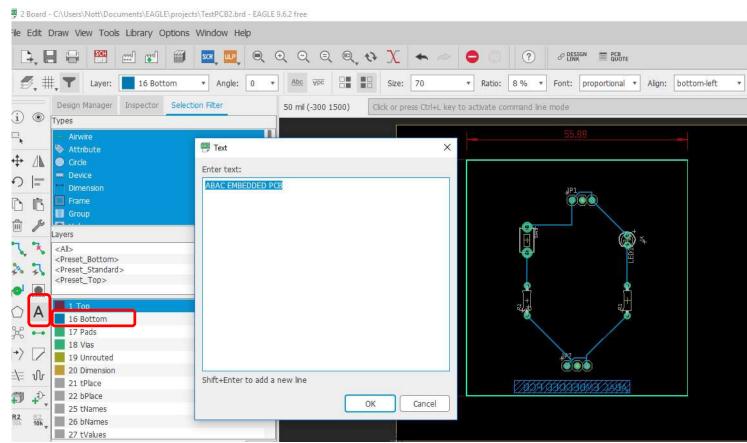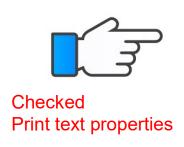# Chapter 6.5 : Print for process (Text)

Checked
Print text properties

Properties

Text

Position	2300	500
Angle	0	

☒ Mirror   ☐ Spin

Size	70
Ratio	8 %
Line Distance	50 %
Font	proportional
Align	bottom-left
Layer	16 Bottom

Value
ABAC EMBEDDED PCB

Shift+Enter to add a new line
Locked ☐

OK   Cancel   Apply

Ctrl+L key to activate command line mode

55.88

JP1

LED01

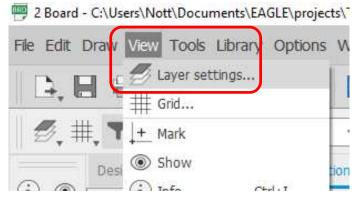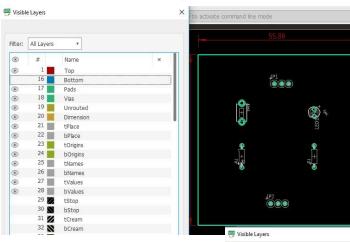R2   R1

JP2

ABAC EMBEDDED PCB

Click to the mark, and right click
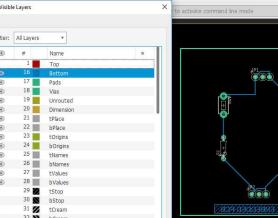
Chapter 6.5 : View from Layers

To see how board look like on both layers

Top layer

Bottom layer
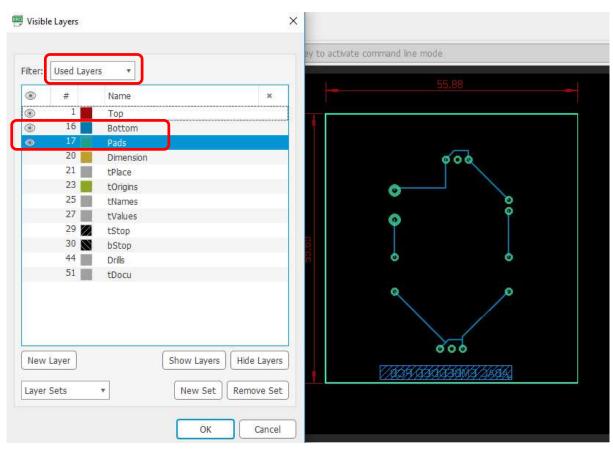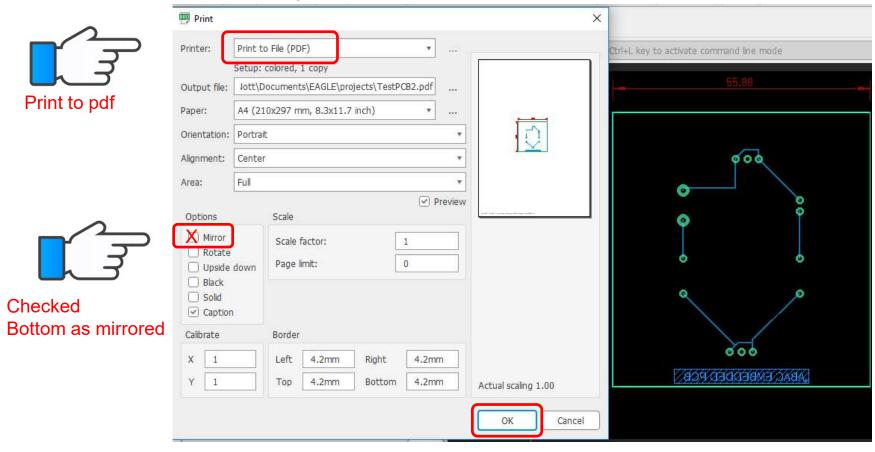
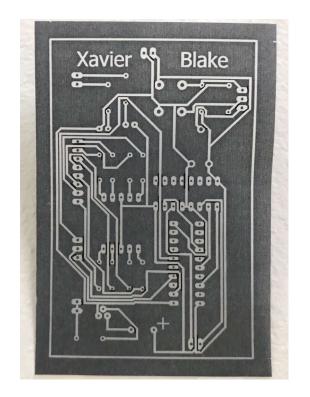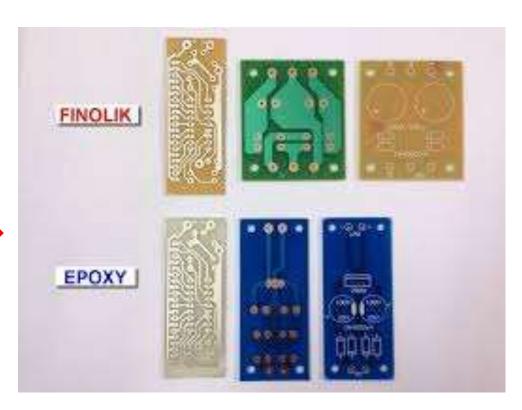# Chapter 6.5 : Print for process (Layers)

Bottom and Pad layers

Print to pdf

Checked
Bottom as mirrored

Chapter 6.5 : PCB Design
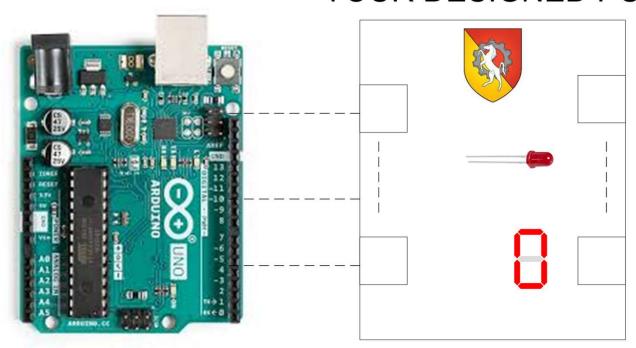
Chapter 6.5 : PCB Shop (can be send via Email)

http://www.seegate15.com/Product1.html

Chapter 6.5 : Your PCB project
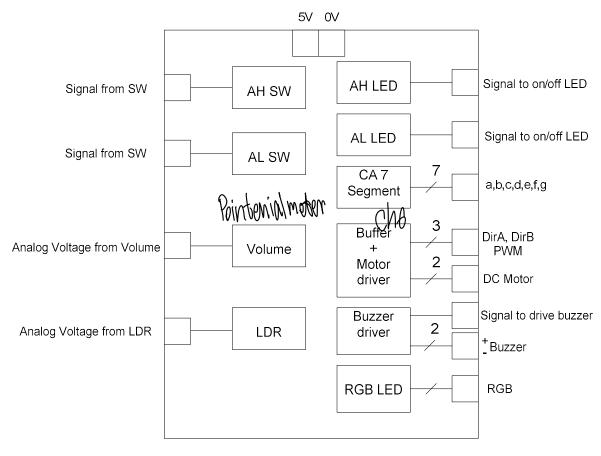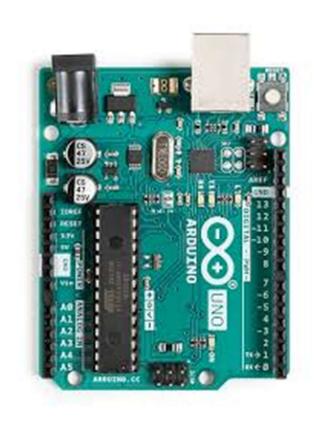
YOUR DESIGNED PCB

Chapter 6.5 : Your PCB project

5V 0V

Signal from SW — AH SW

AH LED — Signal to on/off LED

Signal from SW — AL SW

AL LED — Signal to on/off LED

Pointbenial motern

CA 7 Segment — 7 — a,b,c,d,e,f,g

Analog Voltage from Volume — Volume

Buffer + Motor driver — 3 — DirA, DirB PWM

Buffer + Motor driver — 2 — DC Motor

Analog Voltage from LDR — LDR

Buzzer driver — Signal to drive buzzer

Buzzer driver — 2 — + - Buzzer

RGB LED — RGB

Chapter 6.5 : Your PCB project

Chapter 6.5 : Adding parts

Add parts

Search Adafruit

Library to be added

Chapter 6.5 : Downloading library

Download SparkFun Eagle

Chapter 6.5 : Hidden Pins

74*244 (Version 5)

Octal **BUFFER** and **LINE DRIVER**, 3-state

Footprint: DIL20 (Version 1)

Dual In Line Package

3D Package: DIL20 (Version 2)
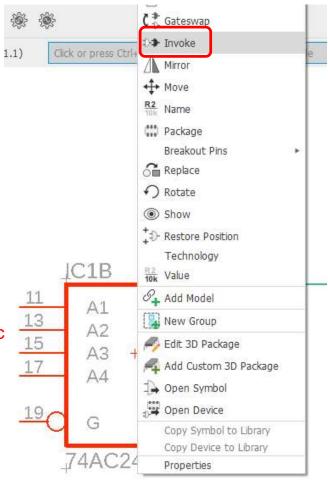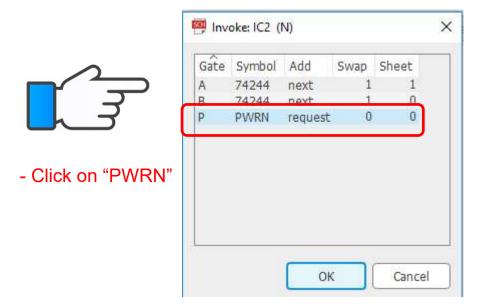
By default, there are no Vcc and Gnd pins shown up

Chapter 6.5 : Your PCB project
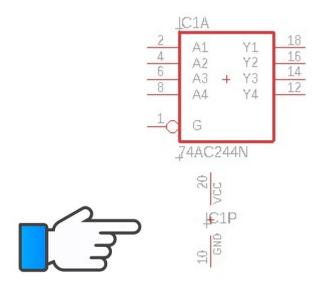
- Right Click on the IC schematic
- Click on "Invoke"

Chapter 6.5 : Your PCB project

- Click on "PWRN"

- Vcc and Gnd Pins are visible