

自己的繪圖機自己做

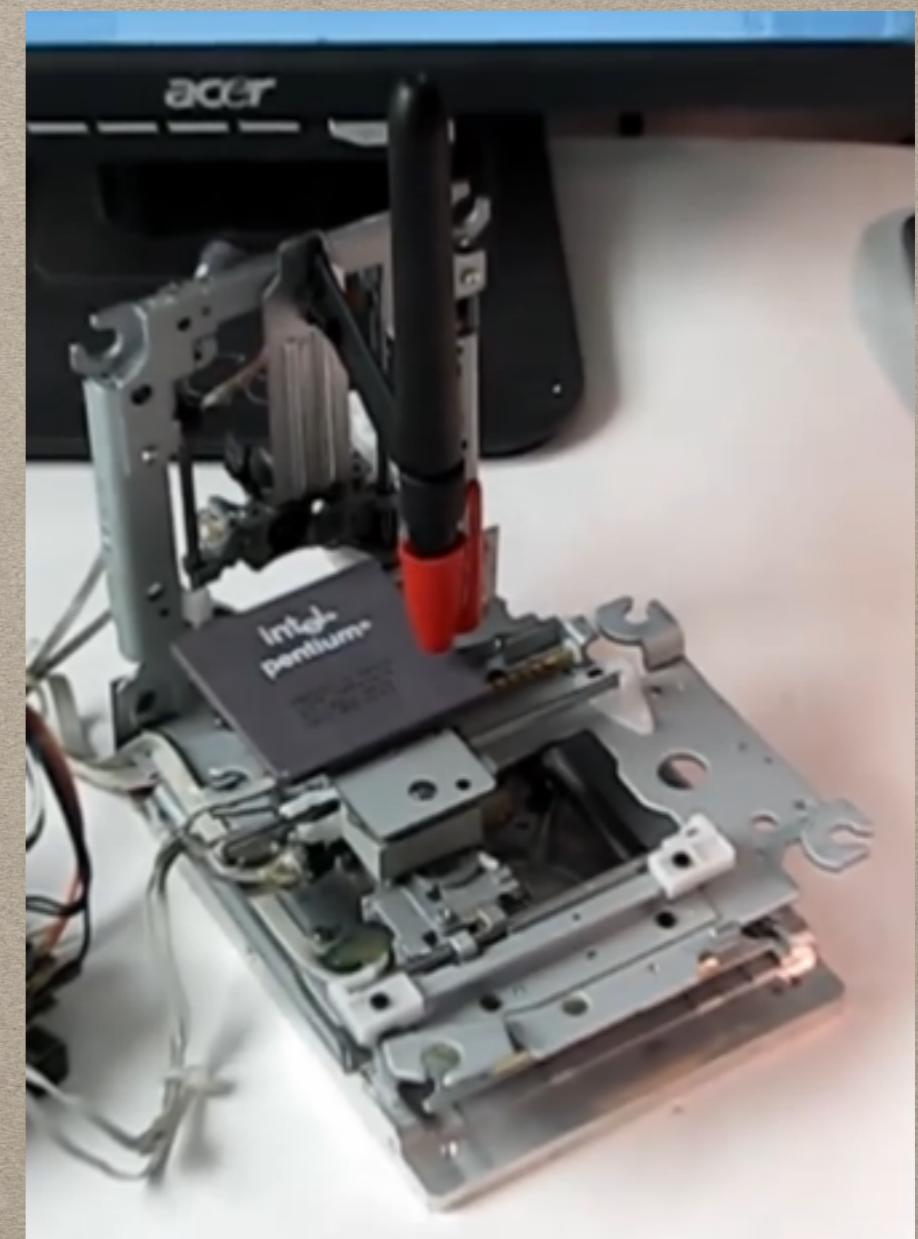
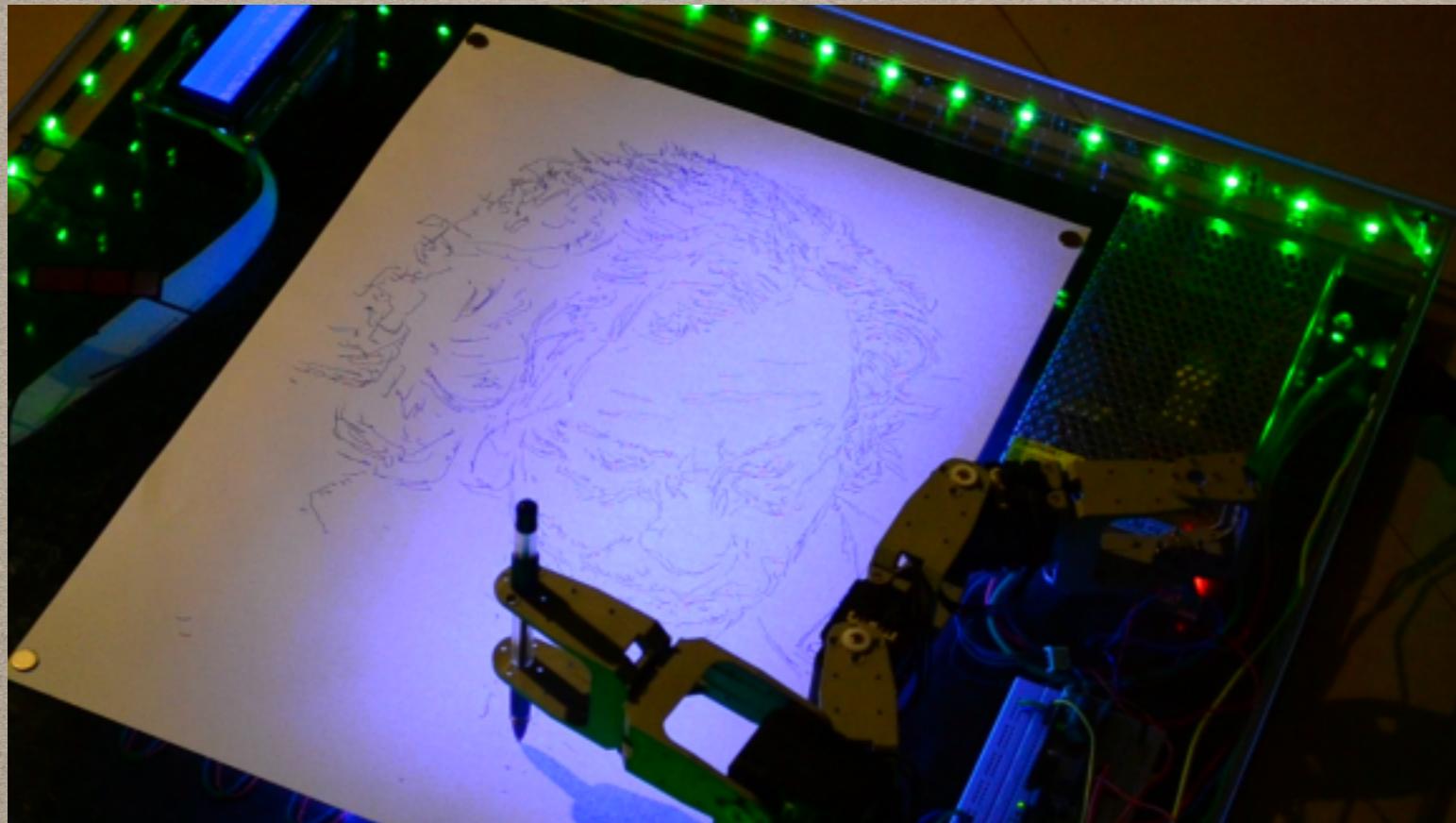
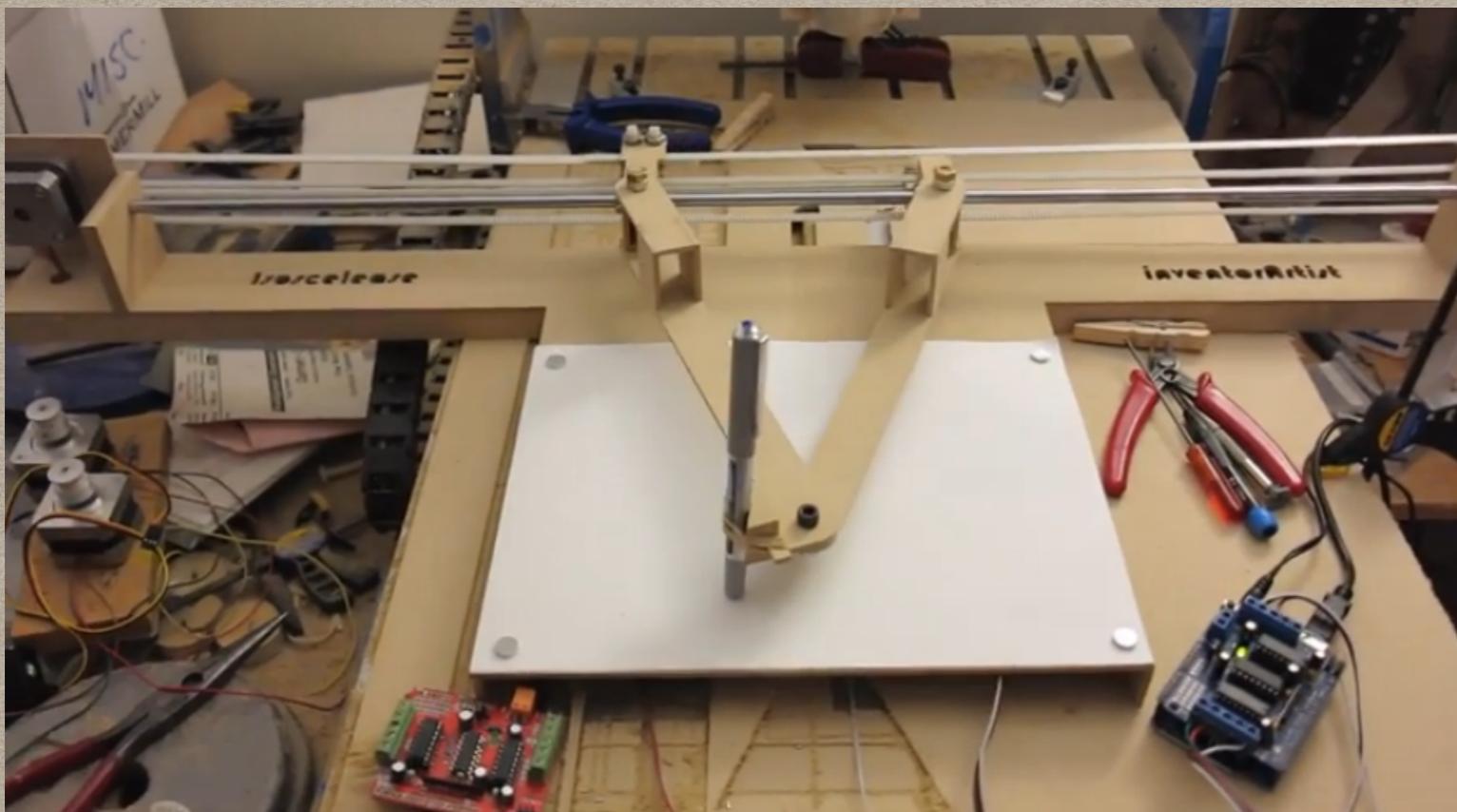
講者：楊宗凡(浪打)

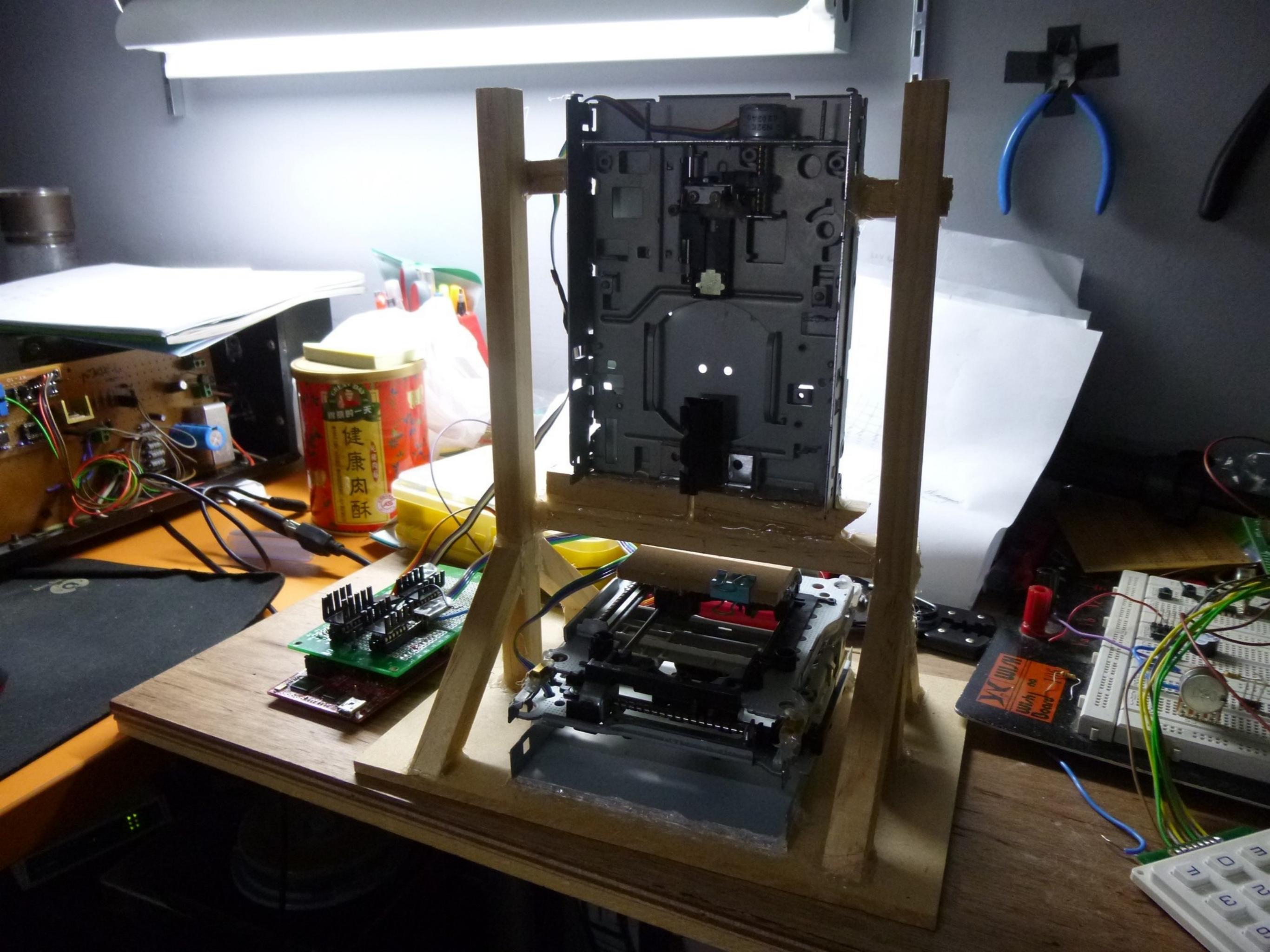
WHO AM I?

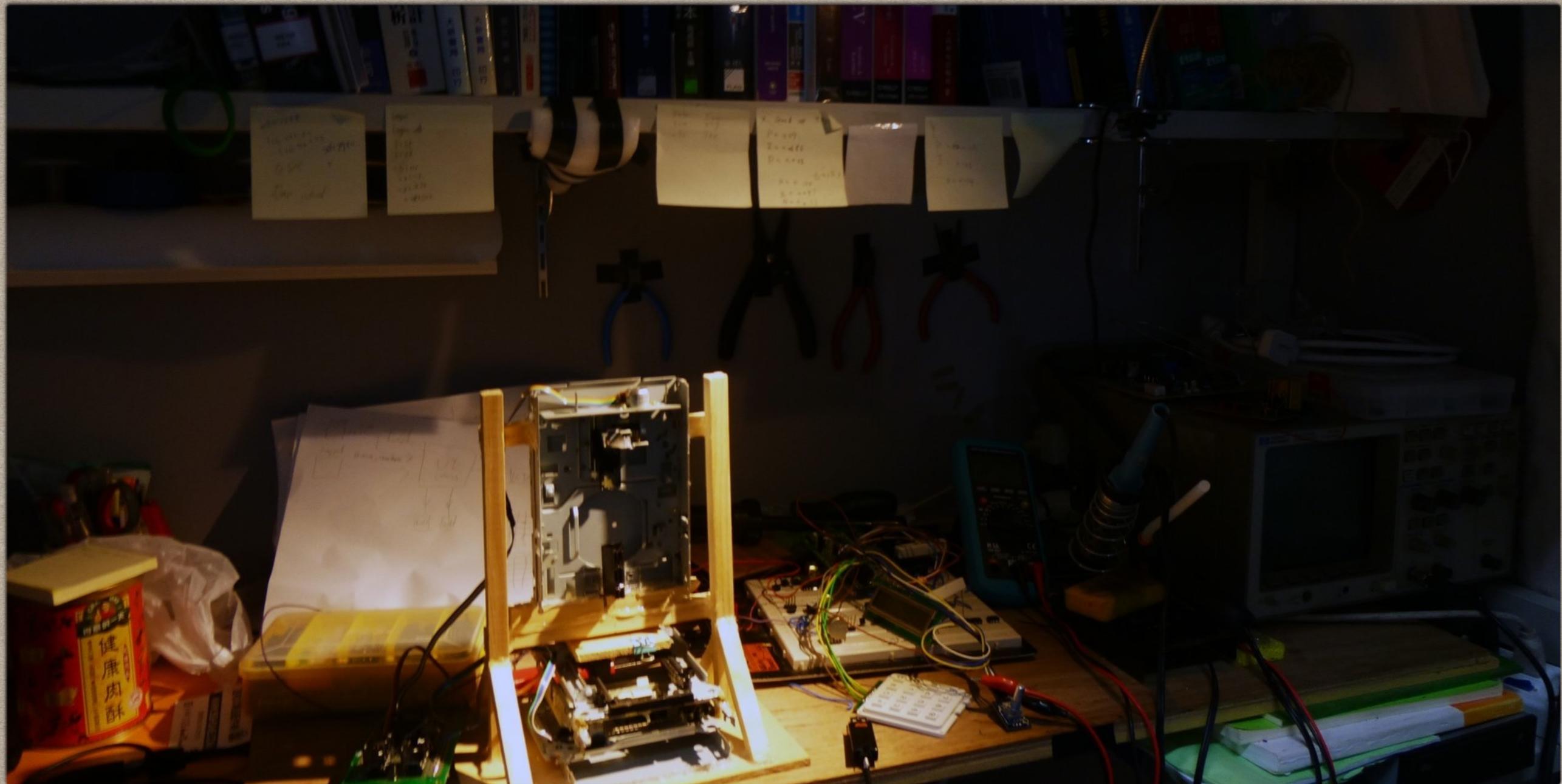
- 楊宗凡，浪打 (lambda)
- 成大電機一年級
- 喜歡D I Y
- Loves Coding
- GitHub : sonicyang
- Blog:
sonicyang.mollusca.cc



繪圖機？





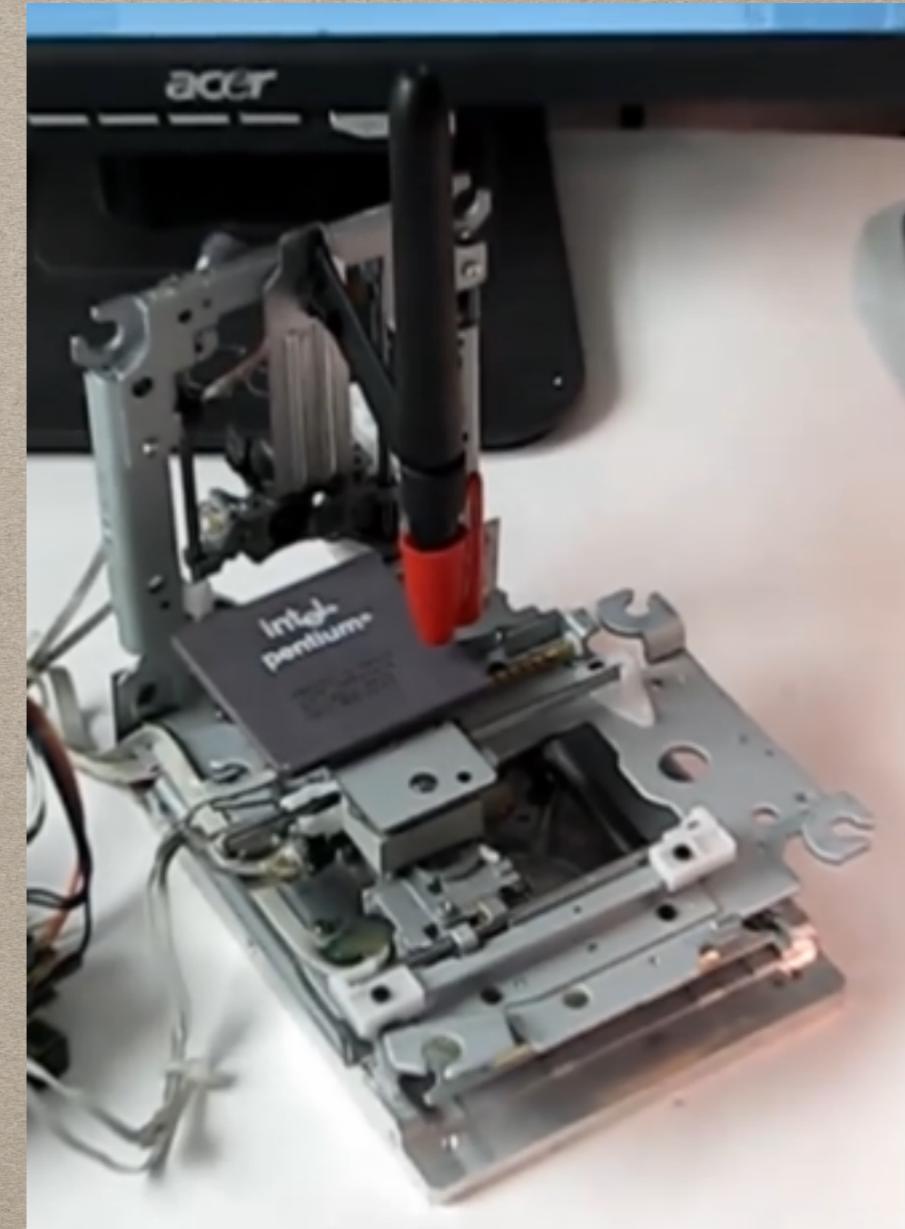


INSPIRATION

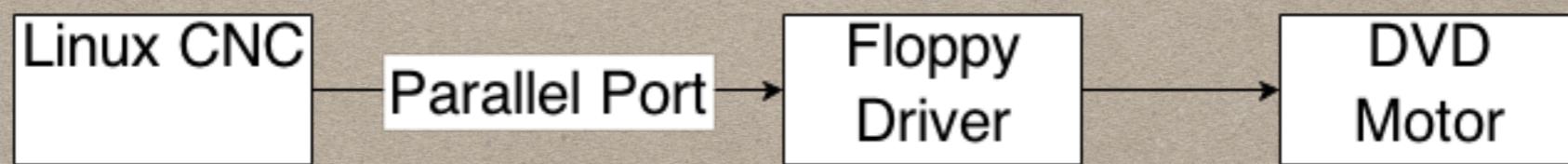
I WAS READING HACK A DAY

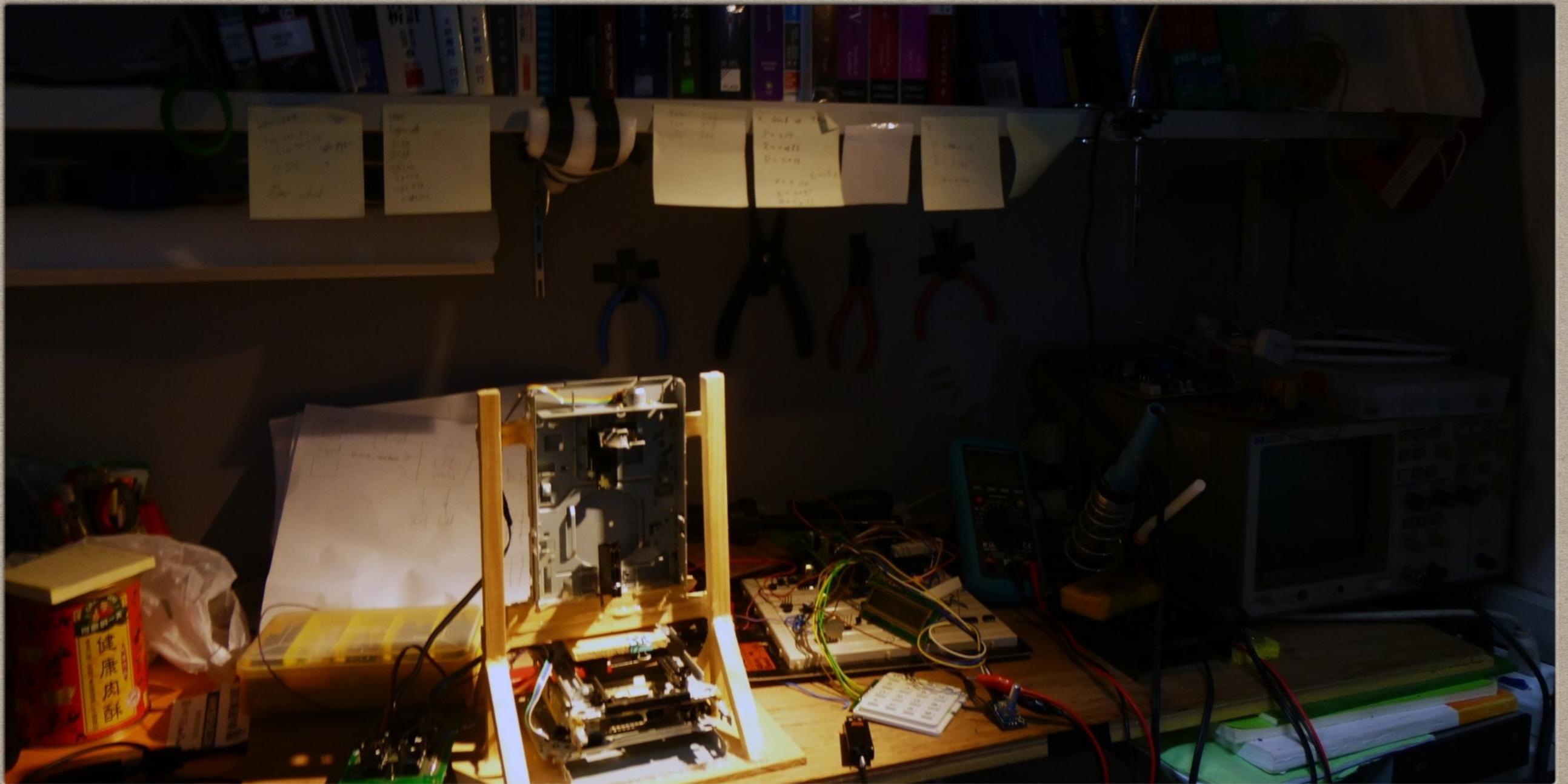
FLOPPY DRIVE CNC

- Youtube User :
Richard Harris
- 使用 D V D 的軸、馬達
- 軟碟機的控制器
- Linux CNC



BLOCK DIAGRAM



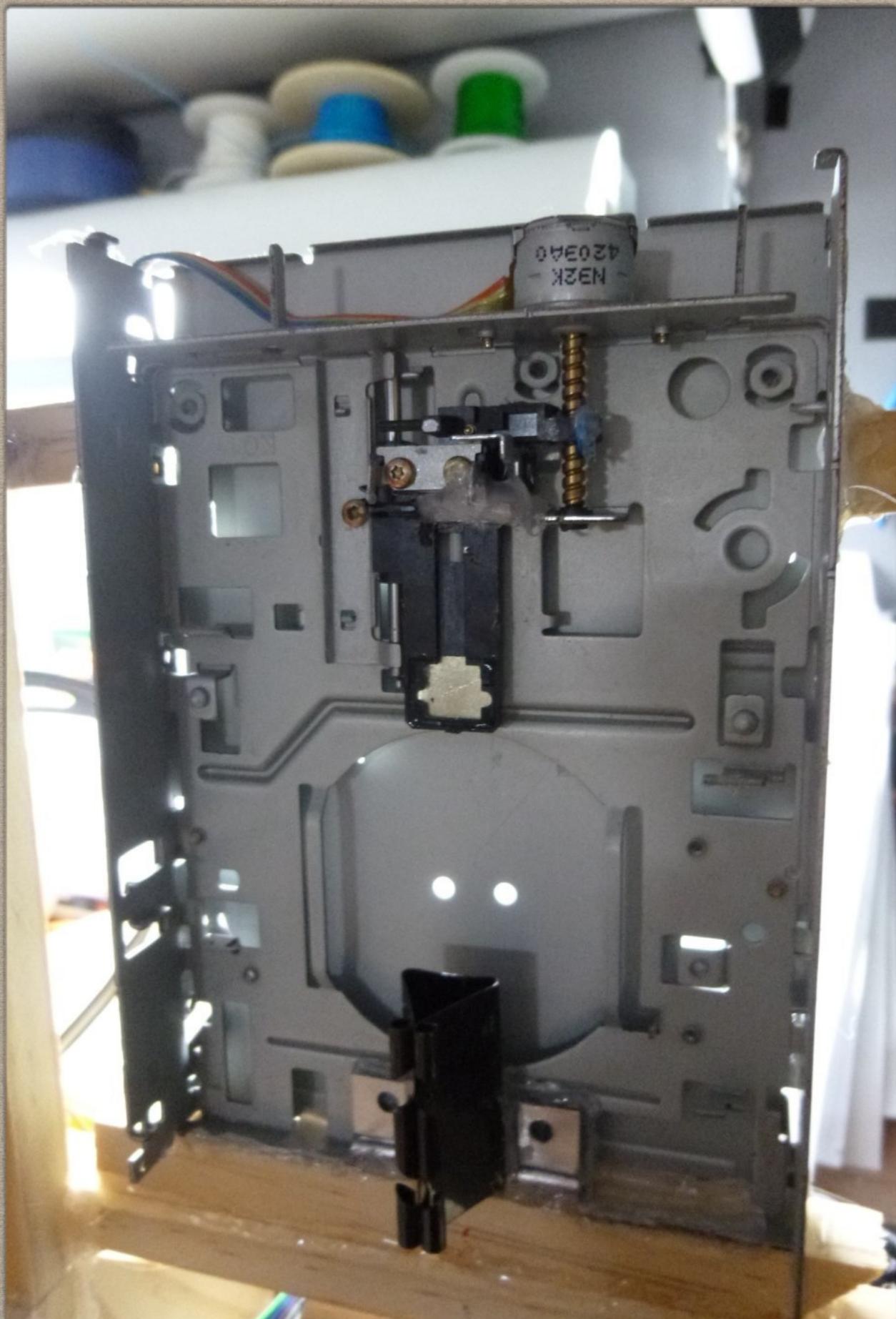


LETS MAKE A CLONE

拆解 D V D 燒錄機

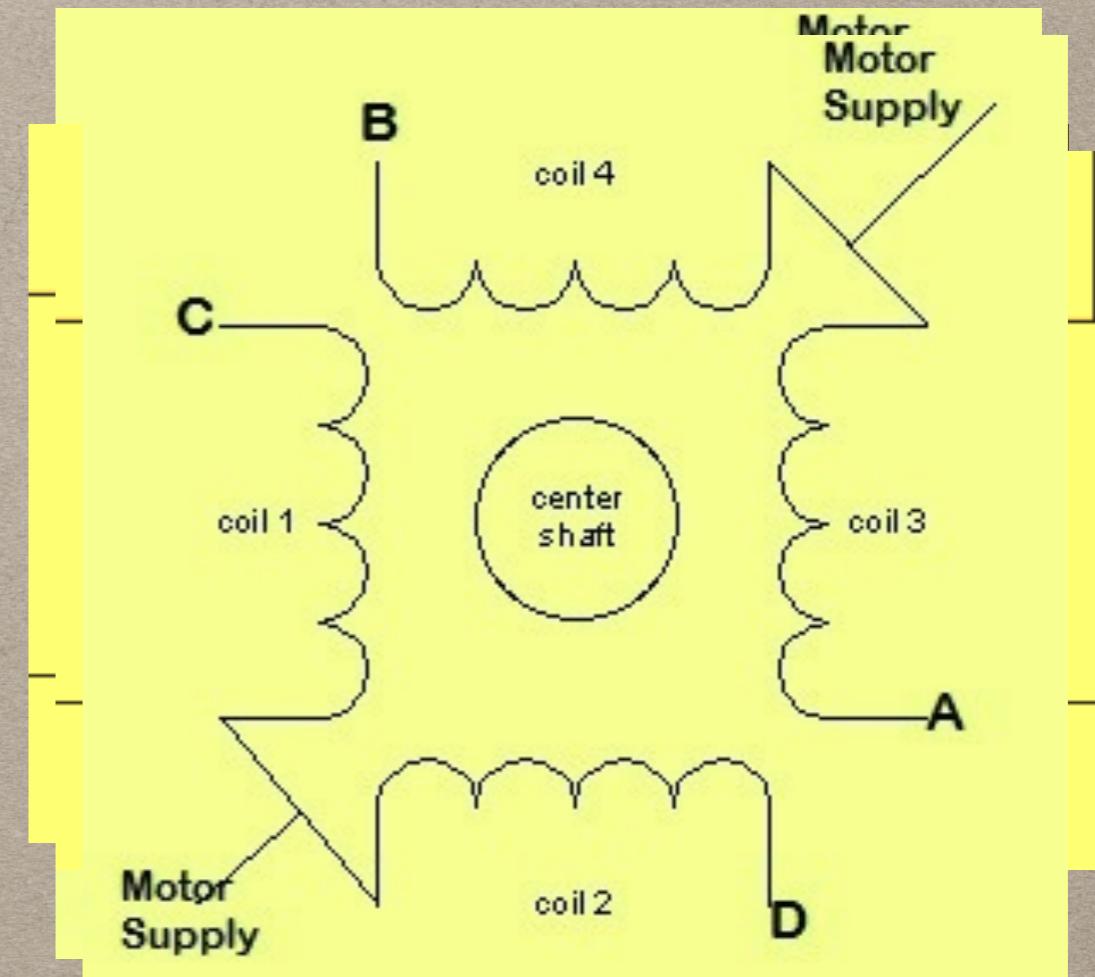


拆解軟碟機



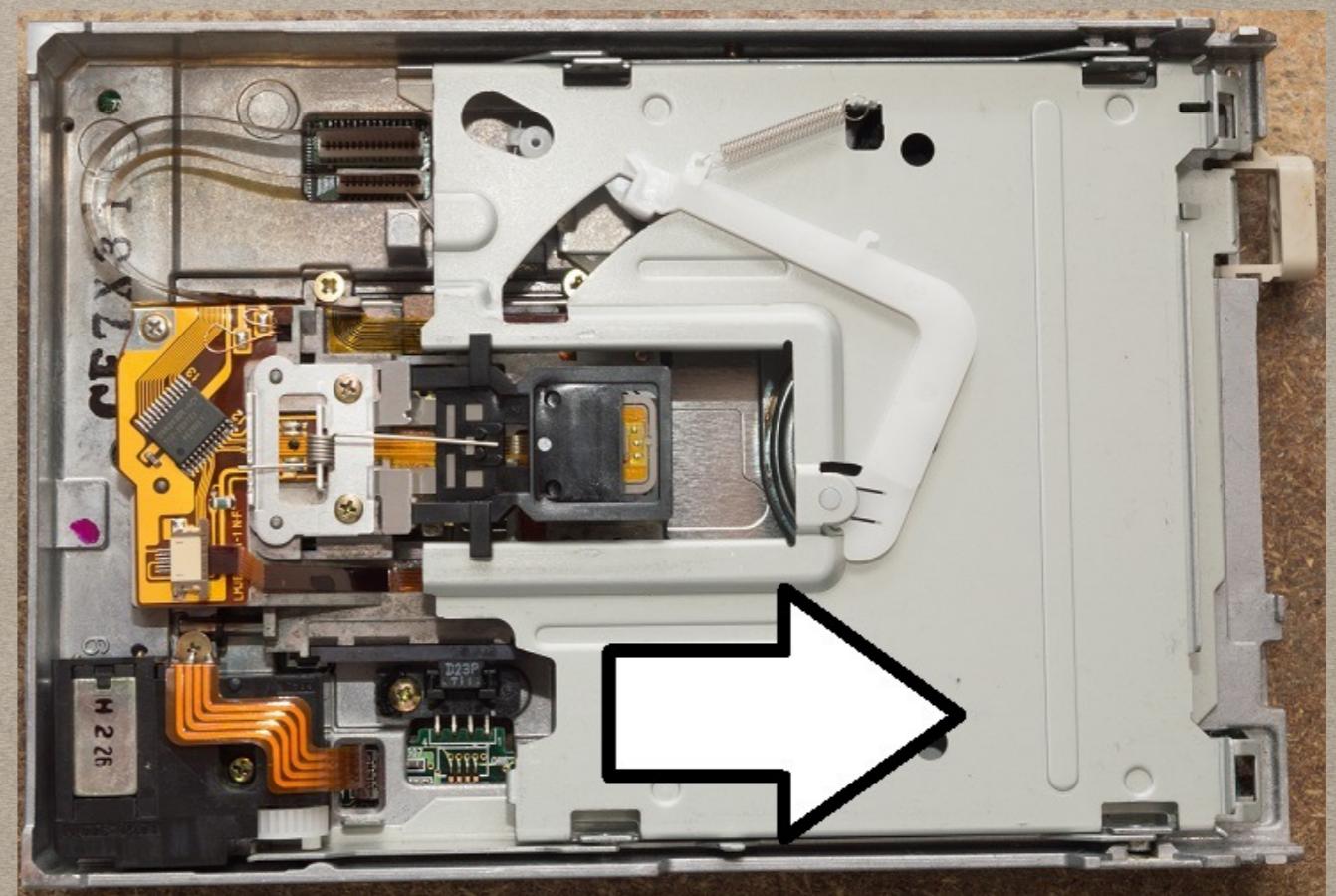
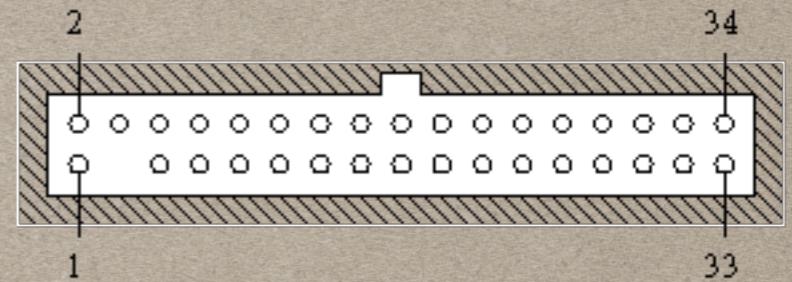
步進馬達(STEPPER MOTOR)

- 四線式、六線式
- 工作原理 – 磁力驅動轉子
- 驅動方式
 - 四線式 – 雙極驅動
 - 六線式 – 單極驅動



FLOPPY INTERFACE

- 三bit控制訊號
 - 制能 – Pin 10
 - 方向 – Pin 18
 - 步進 – Pin 20
- 開機通電時自動RESET

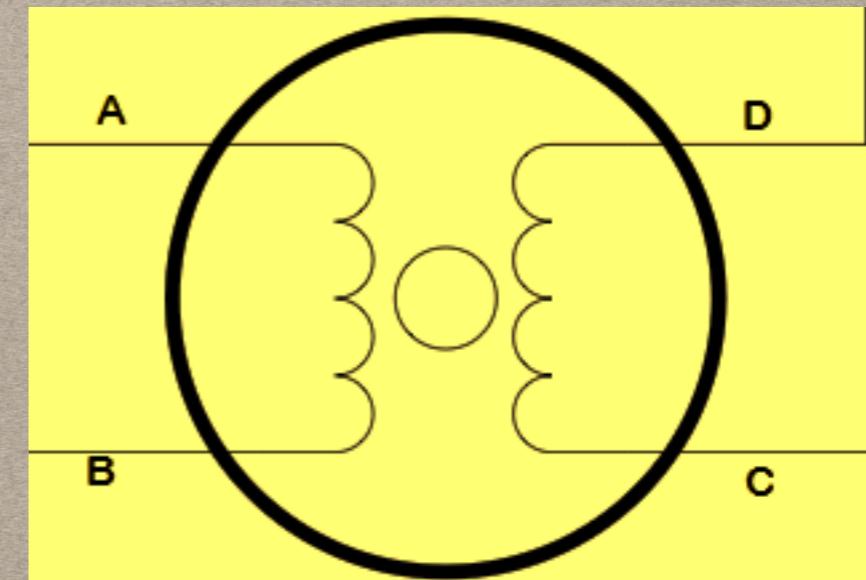
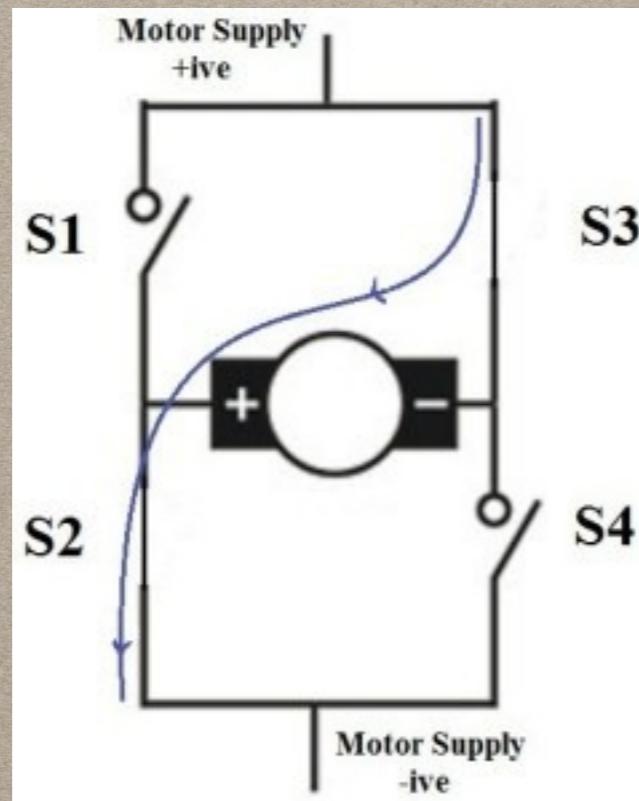


LINUX CNC !?

L293D + MCU

MCU驅動方式

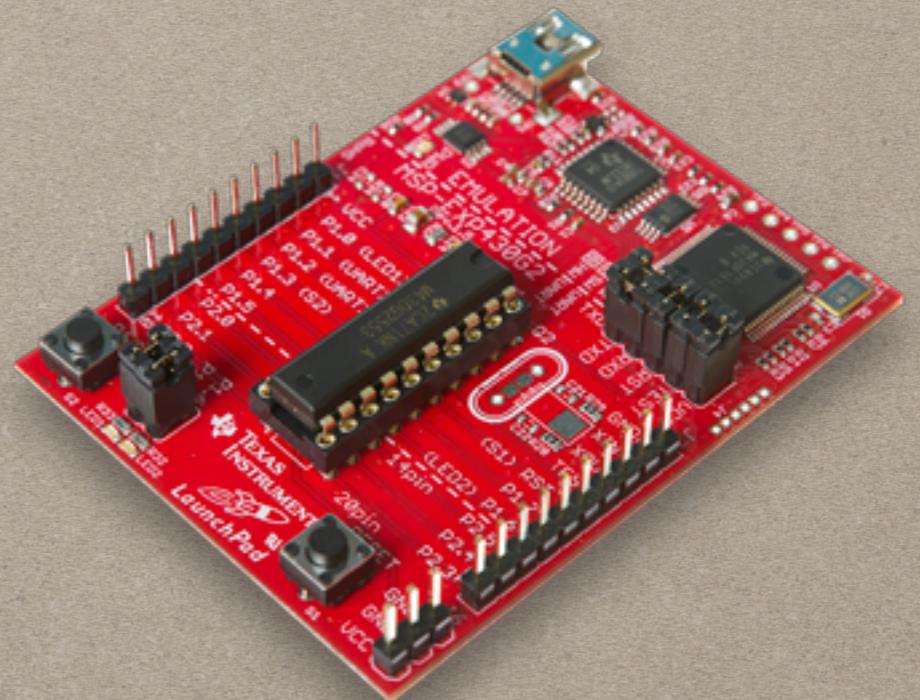
- D V D 為四線式，不容易用MCU驅動，需要使用H-Bridges



ARDUINO?

MSP430

- 2013 賣售，現在依舊便宜
- Low Power Consumption
- 16bit, No FPU
- Almost same as Arduino
- No Bootloader
- Less I/Os





Energia

sketch_may23a | Energia 0101E0011 - □ ×

File Edit Sketch Tools Help

sketch_may23a

```
void setup()
{
    // put your setup code here, to run once:

}

void loop()
{
    // put your main code here, to run repeatedly:

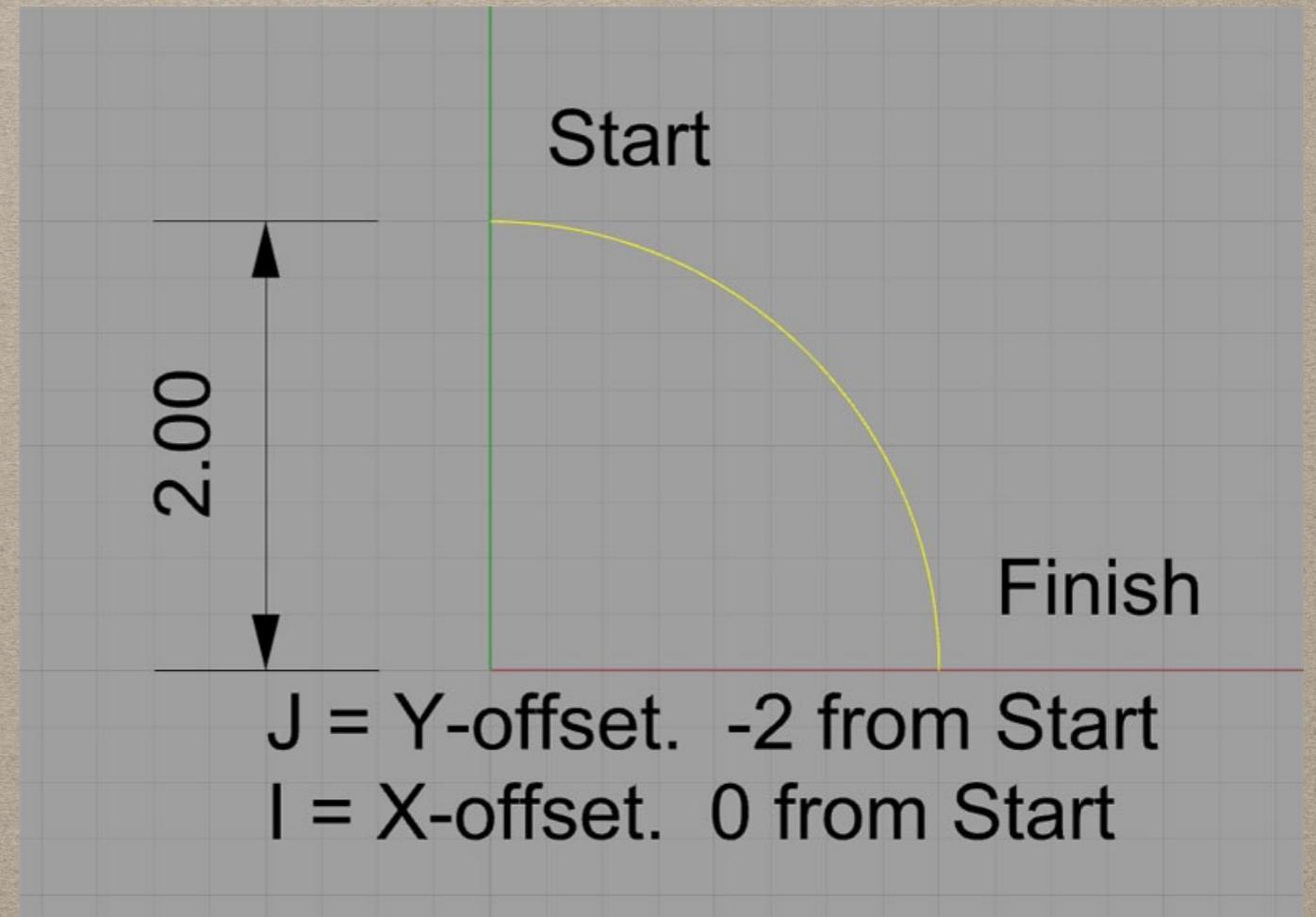
}
```

< >

4 LaunchPad w/ msp430g2553 (16MHz) on COM4

G-CODE

- 移動
G01 X00 Y100 Z20 F20
- 畫圓
G03 X2 Y0 I0 J-2.0
- Query Statues
M114
- Motor Enables
M17、M18

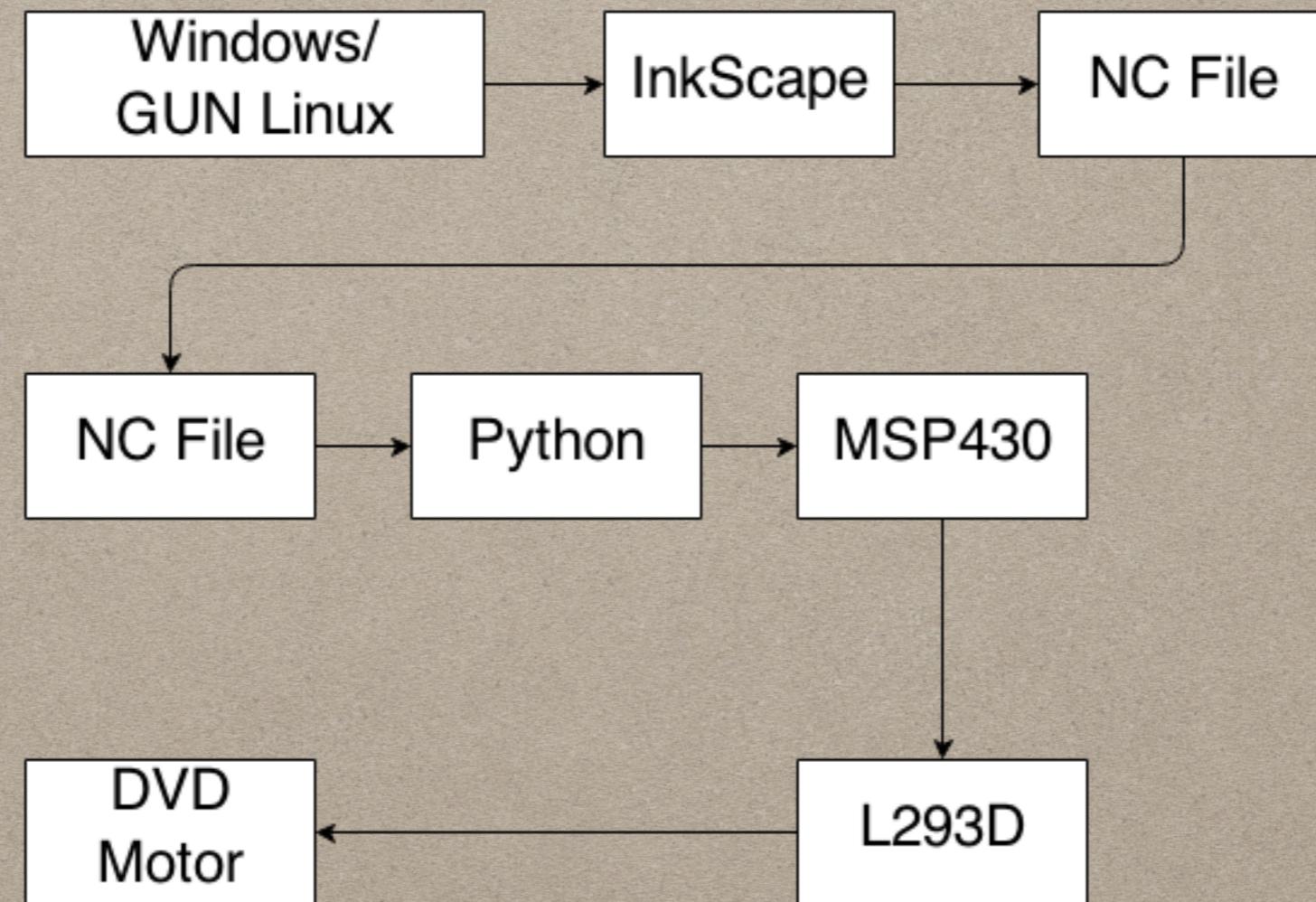


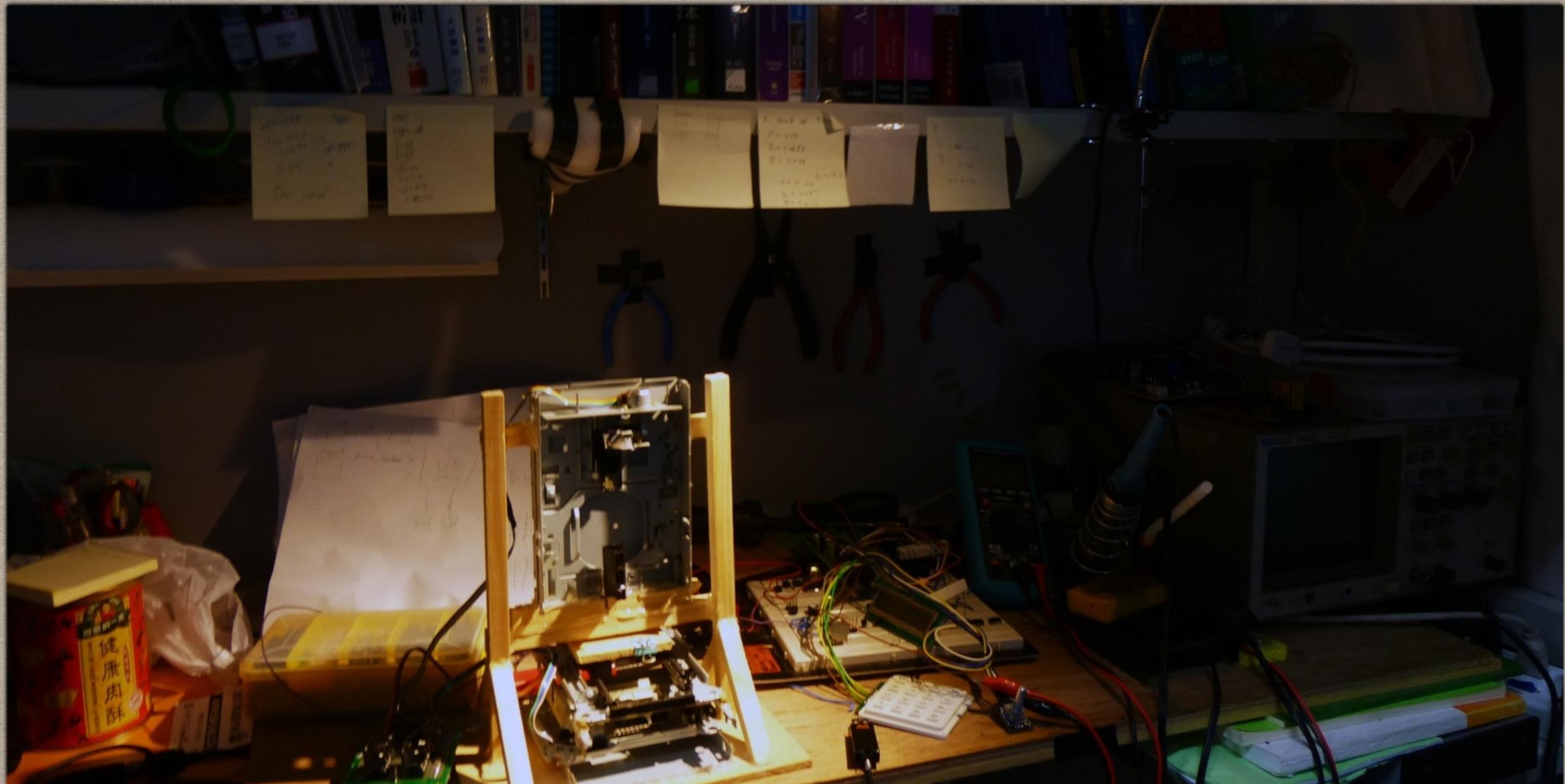
PYTHON

- 傳送Serial資料
- Interactive Shell
- 依序執行某檔案中的G-code

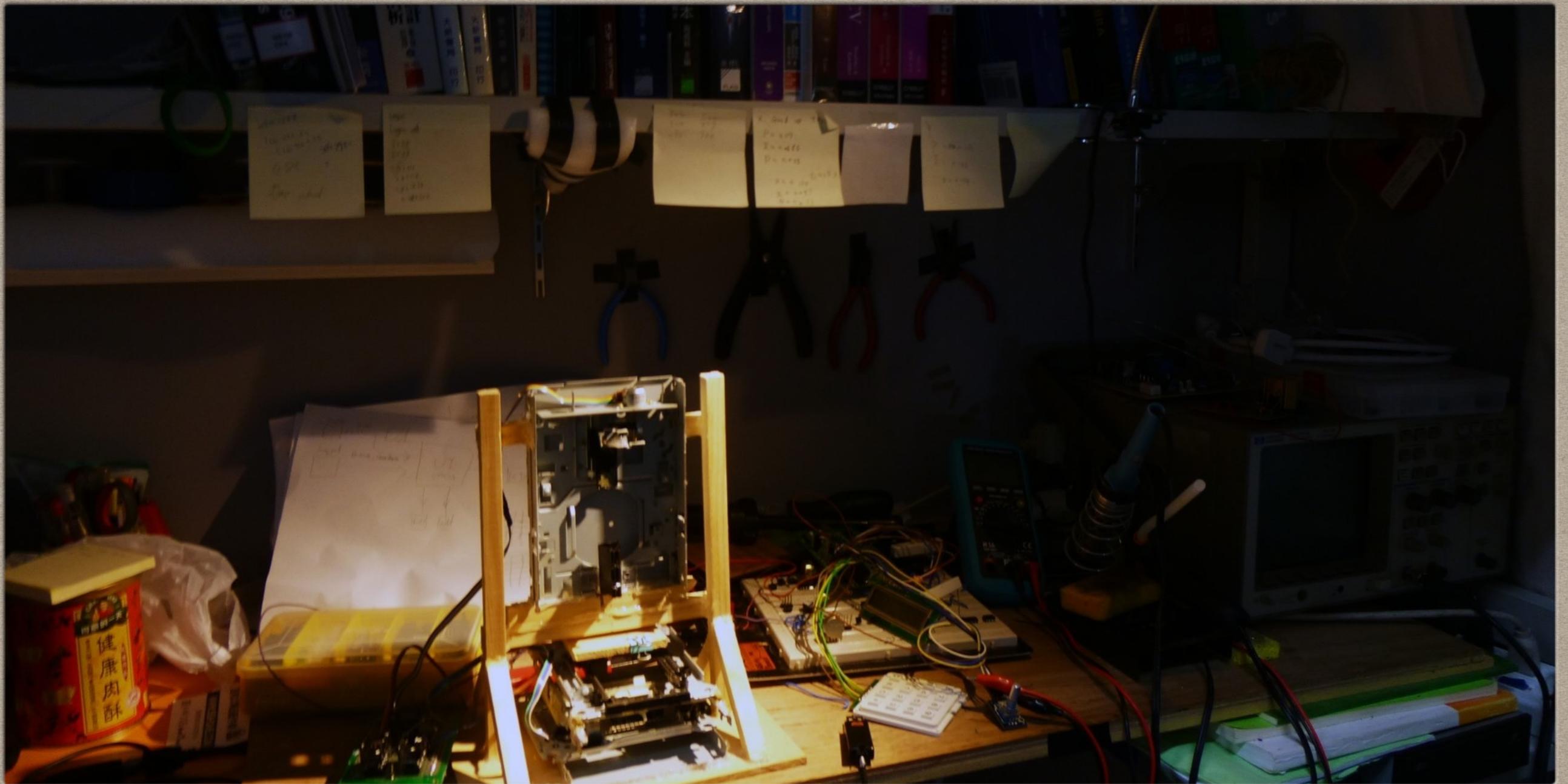
INSCAPE + G-CODE TOOLS

FINAL BLOCK DIAGRAM





LIVE DEMO
~~LIVE DEBUG~~



THANKS FOR LISTENING
ANY QUESTIONS?