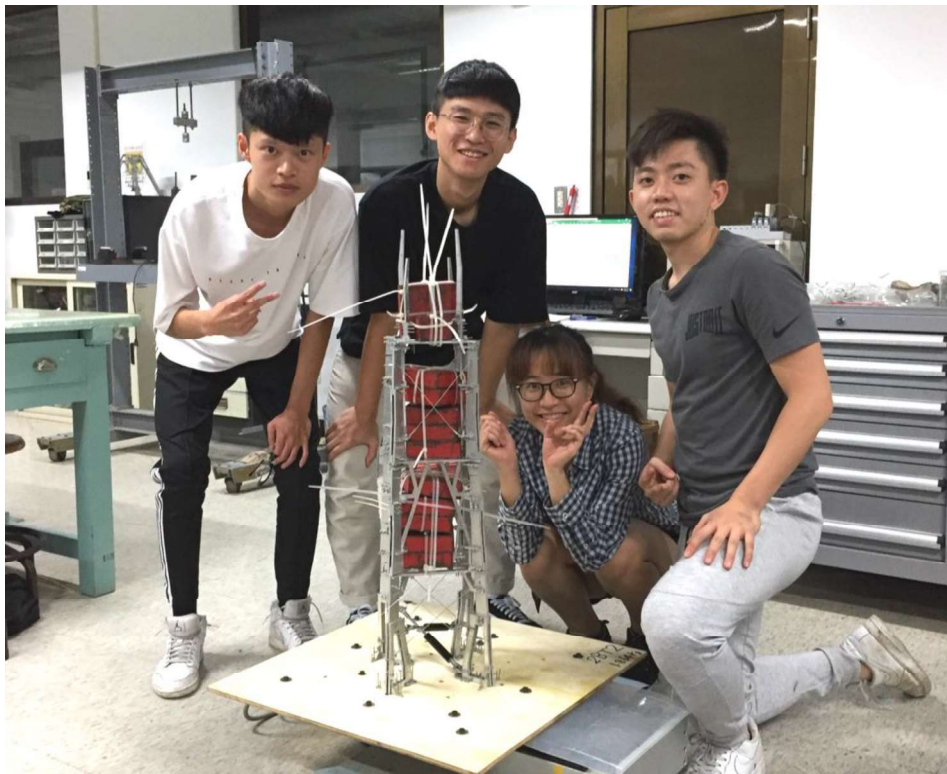


杜麗絲帕



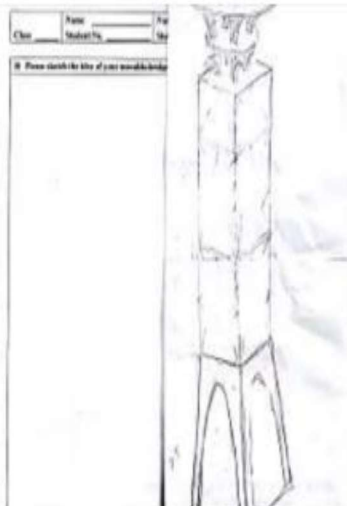
設計概念

「杜麗絲帕」是法語「希望」的音譯，因為它為海上的人指引著回家的路，傳遞希望之光。模型靈感啟發於雲林塭港堆燈塔，是國內較少數的鋼架塔；另外還有參考機械主義建築美學，利用機械、工業線條勾勒整體模型外觀，以此展現我們的設計。而我們的塔最大的特色就是一體成形的衍架，充分地承受了側向力，以及維持整體結構的穩定性。

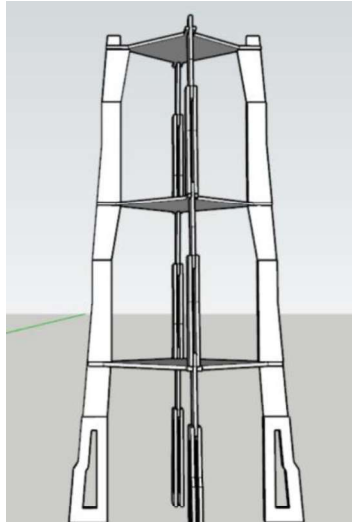
至於自動控制部分，我們除了針對友、敵軍的訊號回應出不同的 LED 閃爍速率外，也在偵測到敵軍時使用水平旋轉的紅外線光束，以在第一時間讓友軍意識到敵方來



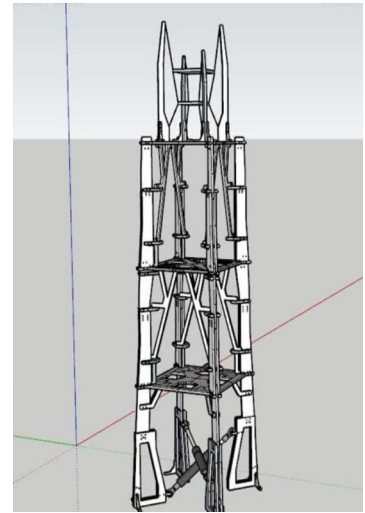
手繪設計草圖



1.最初設計手稿

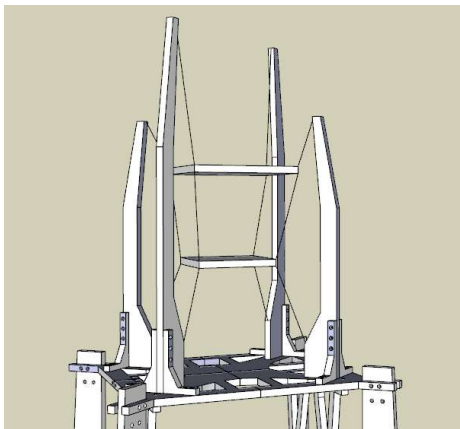


2.柱子輪廓設計

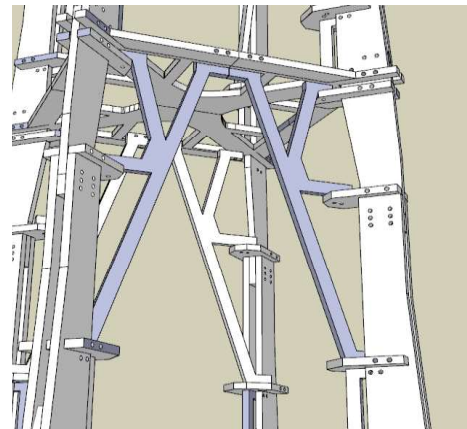


3.設計完成圖

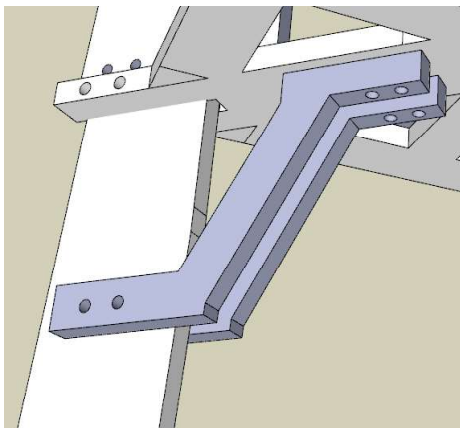
3D電腦設計圖



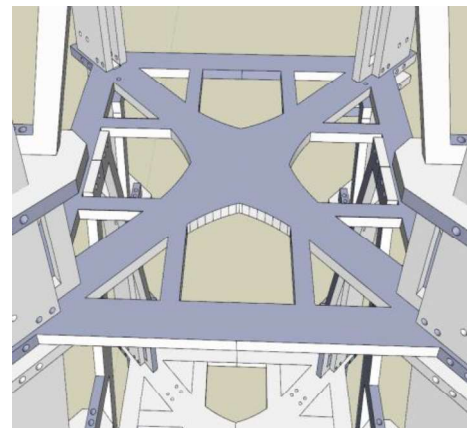
↑使用鋼纜懸吊，以減少屏蔽



↑一體成形的桁架，連結上板與側柱

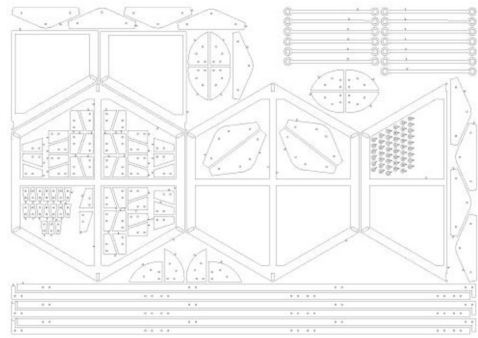
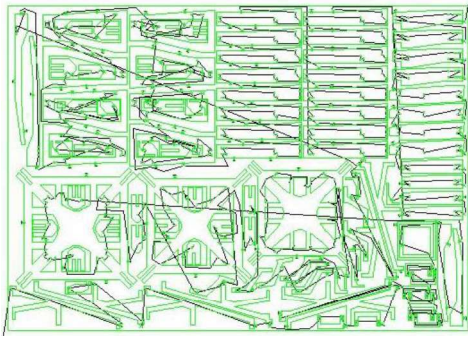


↑二夾一系統的小斜梁



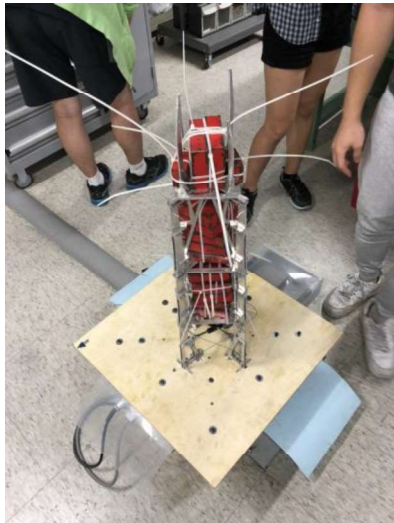
↑部分鏤空的層板，減少耗材

組裝平面圖



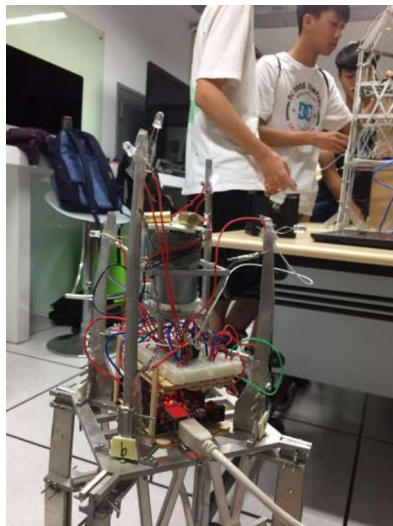
上圖為水刀機切割的路徑圖

振動台耐震測試



載重重量：30Kg
加速度：800(0.8g)
振動時間：約 1 分鐘

自動控制測試



燈塔控制程式碼

```

sketch_may24a
#define E1 5 // motor 1 speed
#define M1 10 // motor 1 direction
#define LEDa 8
#define LEDb 13
#define LEDc 6
#define LEDd 4
#define RL 2
#define buzzerPin 9

void setup() {
  pinMode(LEDa, OUTPUT);
  pinMode(LEDb, OUTPUT);
  pinMode(LEDc, OUTPUT);
  pinMode(LEDd, OUTPUT);
  pinMode(RL, OUTPUT);
  pinMode(buzzerPin, OUTPUT);

  pinMode(M1, OUTPUT);
  digitalWrite(LEDa, HIGH);
  digitalWrite(LEDb, LOW);
  digitalWrite(LEDc, HIGH);
  digitalWrite(LEDd, LOW);
  digitalWrite(RL, LOW);
  digitalWrite(buzzerPin, LOW);
  Serial.begin(9600);
}

void loop() {
  int vala = analogRead(A0);
  int valb = analogRead(A2);
  int valc = analogRead(A4);
  int vald = analogRead(A5);

  int white = 3000;
  int red = 100;

  if (vala > 30){
    closeBeep(buzzerPin);
    digitalWrite(LEDa, HIGH);
    delay(500);
    digitalWrite(LEDa, LOW);
    delay(500);
    digitalWrite(RL, LOW);
    analogWrite(E1, 0);
  }

  if (vala < 30 && vala > 4){
    analogWrite(E1, 255);
    digitalWrite(M1, HIGH);
    delay(500);
    digitalWrite(M1, LOW);
    delay(400);
  }

  if (valb < 4 ){
    closeBeep(buzzerPin);
    digitalWrite(RL, LOW);
    analogWrite(E1, 0);
  }

  if (valb > 30){
    closeBeep(buzzerPin);
    digitalWrite(LEDb, HIGH);
    delay(500);
    digitalWrite(LEDb, LOW);
    delay(500);
    digitalWrite(RL, LOW);
    analogWrite(E1, 0);
  }

  if (valb < 30 && valb > 10){
    alarmBeep(buzzerPin);
    digitalWrite(RL, HIGH);
    digitalWrite(LEDb, HIGH);
    delay(50);
    digitalWrite(LEDb, LOW);
    delay(50);
  }

  if (valb < 30 && valb > 10){
    analogWrite(E1, 255);
    digitalWrite(M1, HIGH);
    delay(500);
    digitalWrite(M1, LOW);
    delay(400);
  }

  if (valc < 10 ){
    closeBeep(buzzerPin);
    digitalWrite(RL, LOW);
    analogWrite(E1, 0);
  }

  if (valc > 30){
    closeBeep(buzzerPin);
    digitalWrite(LEDc, HIGH);
    delay(500);
    digitalWrite(LEDc, LOW);
    delay(500);
    digitalWrite(RL, LOW);
    analogWrite(E1, 0);
  }

  if (valc < 30 && valc > 5){
    alarmBeep(buzzerPin);
    digitalWrite(RL, HIGH);
    digitalWrite(LEDc, HIGH);
    delay(50);
    digitalWrite(LEDc, LOW);
    delay(50);
  }

  if (valc < 30 && valc > 5){
    analogWrite(E1, 255);
    digitalWrite(M1, HIGH);
    delay(500);
    digitalWrite(M1, LOW);
    delay(400);
  }

  if (valc < 5 ){
    closeBeep(buzzerPin);
    digitalWrite(RL, LOW);
    analogWrite(E1, 0);
  }

  Serial.println(valc);
}

void alarmBeep(int pin) {
  tone(pin, 3000);
}

void closeBeep(int pin) {
  tone(pin, 0);
}

if (vald > 30){
  closeBeep(buzzerPin);
  digitalWrite(LEDd, HIGH);
  delay(500);
  digitalWrite(LEDd, LOW);
  delay(500);
  digitalWrite(RL, LOW);
  analogWrite(E1, 0);
}

if (vald < 30 && vald > 5){
  alarmBeep(buzzerPin);
  digitalWrite(RL, HIGH);
  digitalWrite(LEDd, HIGH);
  delay(50);
  digitalWrite(LEDd, LOW);
  delay(50);
}

if (vald < 30 && vald > 5){
  analogWrite(E1, 255);
  digitalWrite(M1, HIGH);
  delay(500);
  digitalWrite(M1, LOW);
  delay(400);
}

if (vald < 5 ){
  closeBeep(buzzerPin);
  digitalWrite(RL, LOW);
  analogWrite(E1, 0);
}

Serial.println(valc);
}

void alarmBeep(int pin) {
  tone(pin, 3000);
}

void closeBeep(int pin) {
  tone(pin, 0);
}

```

作品完成圖



成員名單

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- B05208025 周語涵 土木二