**電通二甲微處理器實驗 實驗結報**

|  |  |  |  |
| --- | --- | --- | --- |
| **實驗名稱** | **Lab 06 – 音樂教室** | | |
| **學號** | **06050252** | **組員** | **單任瑜** |

1. **實驗目的**

**Arduino 接喇叭如何接線?**

**如何使用 tone library?**

**如何演奏一段音樂?**

**如何使用 4x4 鍵盤演奏音樂?**

**如何發報摩斯電碼?**

1. **實驗步驟**

**先找好歌曲，再把譜面轉成頻率，在寫程式**

1. **程式碼**

**歌曲的太長放在附件裡面**

**1.**

|  |
| --- |
| **#include <Keypad.h>**  **int a[]={247,277,294,330,370,392,440,494,554,587,659,740,784,880,988,1109};**  **const byte ROWS = 4; // 4 Rows**  **const byte COLS = 4; // 4 Columns**  **char keys[ROWS][COLS] = {**  **{'F', 'E', 'D', 'C'}, {'B','3','6', '9'},**  **{'A', '2', '5', '8'}, {'0', '1', '4', '7'}**  **};**  **byte rowPins[ROWS] = {13, 12, 11, 10};**  **byte colPins[COLS] = {17, 16, 15, 14};**  **Keypad keypad =Keypad( makeKeymap(keys), rowPins,colPins, ROWS, COLS );**  **void setup()**  **{**  **Serial.begin(9600);**  **pinMode(5,OUTPUT);**  **}**  **void loop()**  **{**  **int i;**  **char key = keypad.getKey();**  **if (key != NO\_KEY)**  **{**  **if(key>='A' && key<='F')**  **{**  **i=key-'A'+10;**  **tone(5,a[i],300);**  **Serial.println(i);**  **}**  **else**  **{**  **i=key-'0'+0;**  **tone(5,a[i],300);**  **Serial.println(i);**  **}**  **}**  **}** |

**2.**

|  |
| --- |
| **Char \*morse[]={"01","1000","1010","100","0","0010","110","0000","00","0111","101","0100","11","10","111","0110","1101","010","000","1","001","0001","11","1001","1011","1100"};**  **const byte Buzzer=10;**  **char chr,index;**  **char \*ptr;**  **void setup() {**  **// put your setup code here, to run once:**  **pinMode(Buzzer,OUTPUT);**  **Serial.begin(9600);**  **}**  **void loop() {**  **// put your main code here, to run repeatedly:**  **if(Serial.available())**  **{**  **chr=Serial.read();**  **Serial.println(chr);**  **if((chr-'A')>=0 && (chr-'Z')<=0)**  **{**  **index=chr-'A';**  **ptr=morse[index];**  **while(\*ptr!='\0')**  **{**  **if(\*ptr=='0')**  **{**  **tone(Buzzer,440,100);**  **delay(100);**  **}**  **else{**  **tone(Buzzer,440,300);**  **delay(100);**  **}**  **ptr++;**  **delay(100);**  **}**  **delay(300);**    **}**  **}**  **}** |

1. **實驗結果及分析**

**可以用序列埠輸入英文 發出摩斯密碼**

1. **心得討論**

**這次實驗很好玩，尤其是自己做出一首歌的成就感**