

```
1
2  #include "Sound.h"
3  #include <lm3s1968.h>
4  #include <math.h>
5  #include "DAC.h"
6  #include "systick.h"
7  #include "systickints.h"
8
9  const unsigned long SAMPLE_RATE = 128;
10 unsigned int sinArray[SAMPLE_RATE];
11 volatile unsigned long index = 0;
12
13 void Sound_Init() {
14     int sinResult;
15     double pi = 4.0 * atan(1.0);
16     int i;
17     for (i = 0; i < SAMPLE_RATE; i++) {
18         sinResult = (int)(7.0*sin(2.0*pi*i/SAMPLE_RATE)+7.49);
19         sinArray[i] = sinResult;
20     }
21 }
22
23 void Sound_Off(void) {
24     SysTickPeriodSet(0);
25 }
26
27 void Sound_Play(unsigned int n) {
28     unsigned long note = Sound_Note_To_Frequency(n);
29
30     unsigned long period = 0.75 * 50000000.0 / (SAMPLE_RATE*note);
31     SysTickPeriodSet(period);
32 }
33
34 void Sound_Play_Timing(unsigned int note, unsigned long time) {
35     unsigned long mult;
36     if (note != 0) {
37         Sound_Play(note);
38     }
39     for (mult = 500000; mult > 0; mult--) {
40         for (; time > 0; time--) {
41             // stupid wait
42         }
43     }
44     index = 0;
45 }
46
47 unsigned long Sound_Note_To_Frequency(unsigned int n) {
48     return pow(2.0, (n-50.0)/12.0)*440.0;
49 }
50
```