

```

1  #include "Pulse_init.h"
2  #include "TM4C123GH6PM.h"
3  #include <stdio.h>
4
5  extern void OutStr(char*);
6  void print_number(int number);
7  int x, edge=0;
8  int edge1, edge2, edge3;
9  int period, pulse_width, duty_cycle, new_number;
10 char msg1[100], msg2[100];
11
12 void print_number(int number)
13 {
14     int i=0, j=0;
15     while(number) {
16         new_number=number/10;
17         msg1[i]=number-(new_number*10)+48;
18         number=new_number;
19         i++;
20     }
21     for(i=i-1; i>=0; i--) {
22         msg2[j]=msg1[i];
23         j++;
24     }
25
26     msg2[j]='\r';
27     msg2[j+1]='\4';
28     OutStr(msg2);
29 }
30 int main() {
31     pulse_init();
32     detect_init();
33     while(1) {
34
35         x=TIMER1->RIS&4; //Seperating CAERIS bit
36         if(x==4) {
37             if(edge==0)
38             {
39                 edge1=TIMER1->TAR; //Get timer register value
40                 edge=edge+1;
41                 TIMER1->ICR |=0x04; //Clear ICR
42                 continue;
43             }
44             else if(edge==1)
45             {
46
47                 edge2=TIMER1->TAR; //Get timer register value
48                 edge=edge+1;
49                 TIMER1->ICR |=0x04; //Clear ICR
50                 continue;
51             }
52             else if(edge==2)
53             {
54                 edge3=TIMER1->TAR; //Get timer register value
55                 edge=edge+1;
56                 TIMER1->ICR |=0x04; //Clear ICR
57                 continue;
58             }
59             else
60             {
61                 period=edge1-edge3; //PERIOD (FIRST EDGE - THIRD EDGE) [IN CYCLE UNIT, NOT IN ns]
62                 pulse_width=edge1-edge2; //PULSE WIDTH (FIRST EDGE- SECOND EDGE) [IN CYCLE UNIT, NOT IN ns]
63                 duty_cycle=(pulse_width*100)/period; //Pulse Width*100 / PERIOD = DUTY CYCLE
64                 /*OutStr("Duty Cycle (%): \r\4");
65                 print_number(duty_cycle);*/
66                 OutStr("Pulse Width (us):\4");
67                 print_number(pulse_width*0.34/32);
68                 /*OutStr("Period (us): \r\4");
69                 print_number(period/16);*/
70             }
71             edge=0;
72
73         }
74
75     }
76
77 }

```