

```

1 /*=====
2 # Libraries
3 =====*/
4 #include <stdio.h>
5 #include <Board.h>
6 #include "timers.h"
7 #include "IO_Ports.h"
8
9 /*=====
10 # Functions
11 =====*/
12 uint8_t Problem6a(void);
13
14 /*=====
15 # Main code
16 =====*/
17 //trigger is on w3, echo is on w4. trigger is controlled from uno32 so will be output
18 int main(){
19     IO_PortsSetPortInputs(PORTW, PIN4); //set echo pin as input
20     IO_PortsSetPortOutputs(PORTW, PIN3); //set trigger pin as output
21     uint8_t Distance = Problem6a();
22 }
23 //function for getting distance.
24 uint8_t Probleme6a(void){
25     unsigned int time1 = 0; //read time when set trigger
26     unsigned int time2 = 0; //read time when receive echo
27
28     //set trigger pin high for a bit
29     IO_PortsWritePort(PORTW, PIN3);
30     time1 = TIMERS_GetTime();
31     DELAY(0.01);
32     IO_PortsClearPortBits(PORTW, PIN3);
33
34     //echo should be high. Now to wait for it to go low.
35     while((IO_PortsReadPort(PORTW) & PIN4) == PIN4);
36     //once echo is low, grab time and calculate distance
37     time2 = TIMERS_GetTime
38     //D=Ew/148 for distance in inches
39     return ((time2-time1)/148);
40 }
41

```