

Sensors

Break beam sensor made with laser pointer and CdS cell.

Laser pointer came from Office Depot, \$7.99. CdS cell came from IMDL stock.

Here is some break beam test code. The CdS cell was connected to one of the CdS ports on the MRSX01 expansion board.

```
#include <tkbase.h>
#include <stdio.h>

#define hforw 50
#define hrev -50

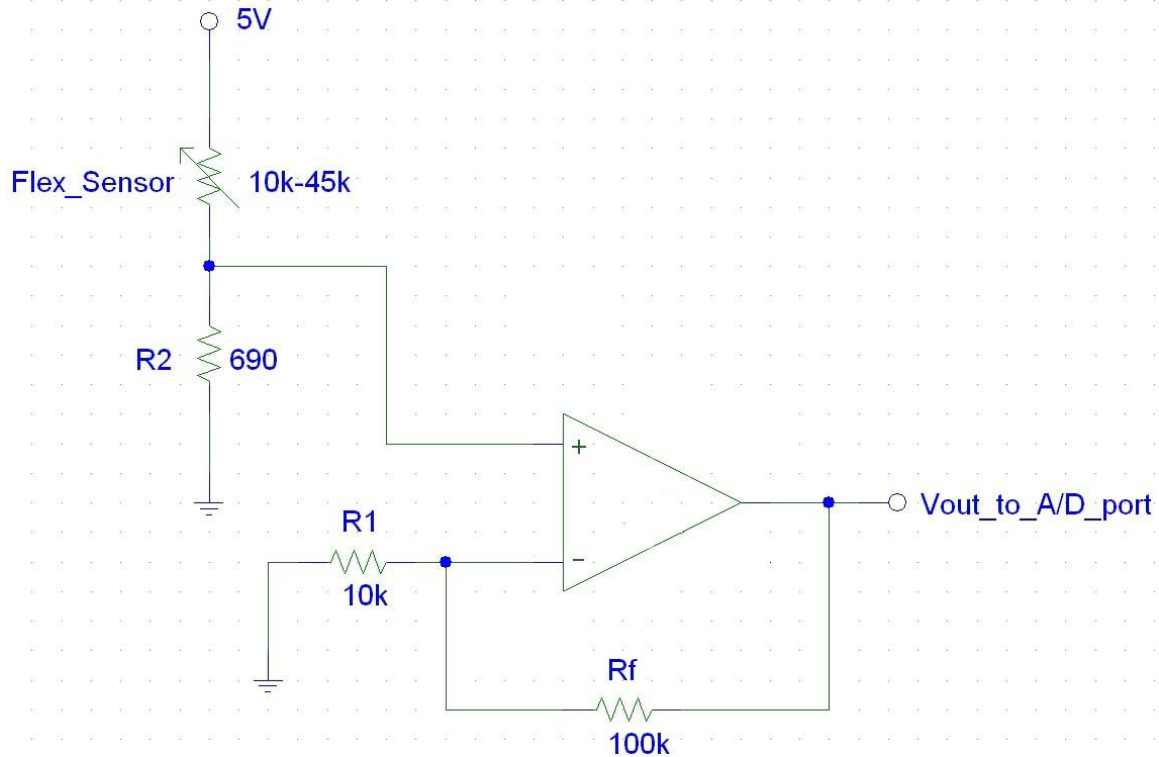
void find_balls(void);

void main(void)
{
  init_analog();
  init_clocktk();
  init_motortk();
  wait(300);
  while (1)
  {
    read_CDS();
    if (CDS[4] < 100)
    {
      printf("there is a ball, value = %d\n\n",CDS[4]);
      wait(300);
    }
    if (CDS[4] > 100)
      printf("there are no balls,value = %d\n\n", CDS[4]);
      wait (300);
      find_balls();
    }
  }

void find_balls(void)
{
  motortk(RIGHT_MOTOR, hforw);
  motortk(LEFT_MOTOR, hforw);
}
```

Flex Sensors came from www.jameco.com, made by Images Company flex sensor \$10.95 each, \$4.25 USPS Priority Shipping, received them in 2 days.

Here's a useful circuit on how to hook up a flex sensor:



Here is some test code for the flex sensors. The flex sensors were hooked up to the IR ports on the MRSX01 expansion board.

```
#include <tkbase.h>
#include <stdio.h>
#define IRE_OUT *(unsigned char *) (0xffb9)
#define IRE_ALL_ON 0xff

void main(void)
{
    init_clocktk();
    init_analog();
    IRE_OUT = IRE_ALL_ON;
    wait(300);

    while(1)
    {
        read_IR();
        if (IRDT[1] > 75)
        {
            printf("the unbent value = %d\n\n", IRDT[1]);
            wait(300);
        }
        if (IRDT[1] < 75)
        {
            printf("the bent value = %d\n\n", IRDT[1]);
            wait(300);
        }
    }
}
```

}
}

Problems and Solutions

I really didn't have any problems with these two sensing devices. They are fairly straightforward to use.

Pros and Cons

Pros were that these designs are simple yet still effective.

Cons were that the laser pointer was awkward to mount and difficult to leave on.

Future Suggestions

Get a laser pointer that is easy to turn on and off or somehow hack into the on/off mechanism.