

Project F3058

Flash Innovation Design Contest 2003

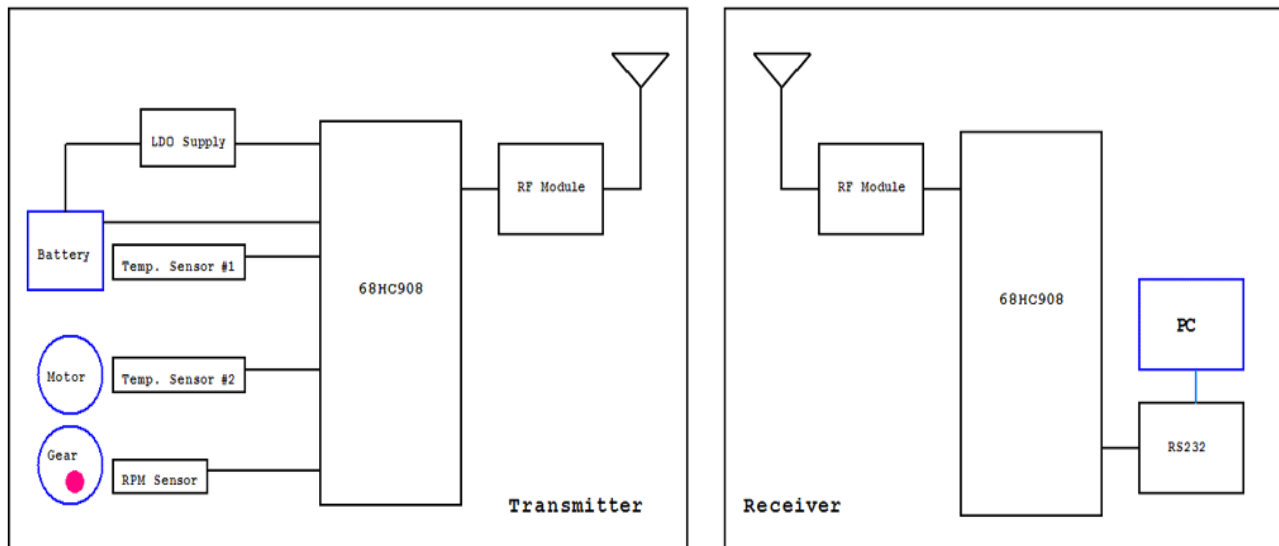
uTelemetry – The Micro Telemetry System for R/C Racing Car & much more

Abstract

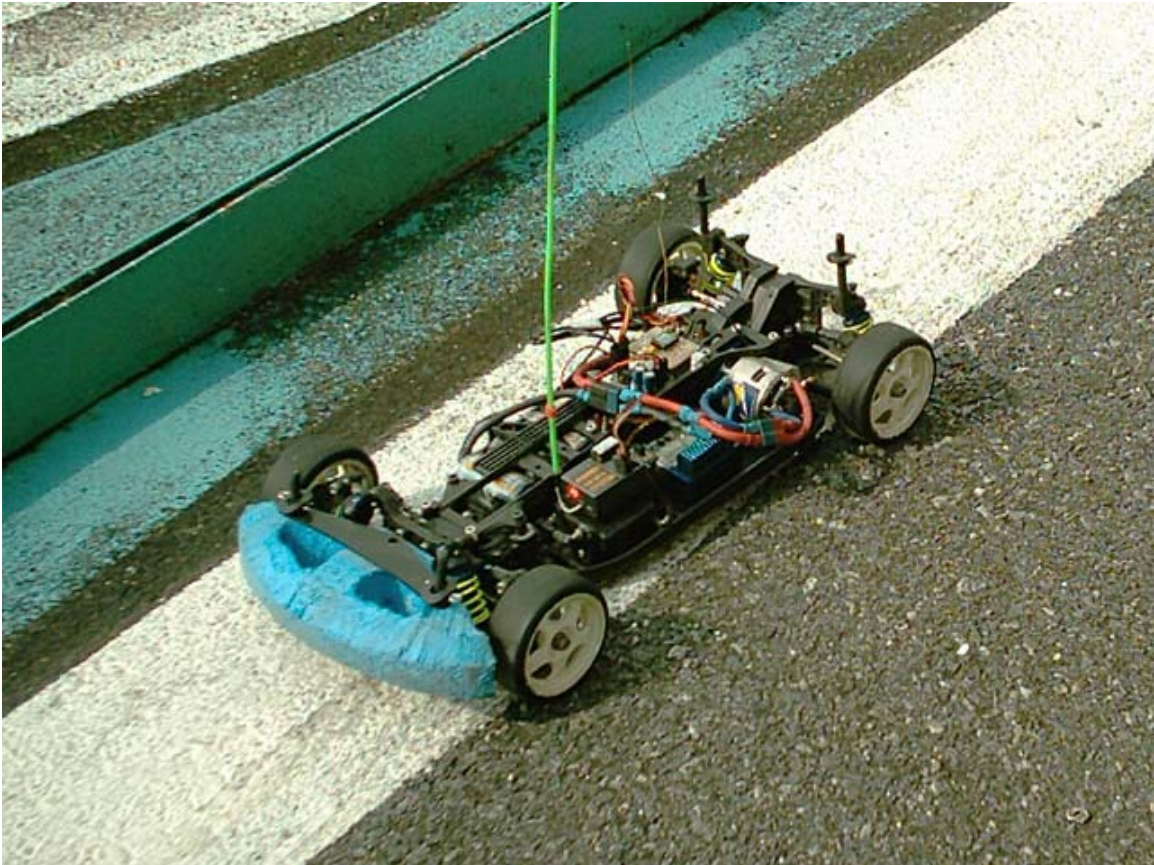
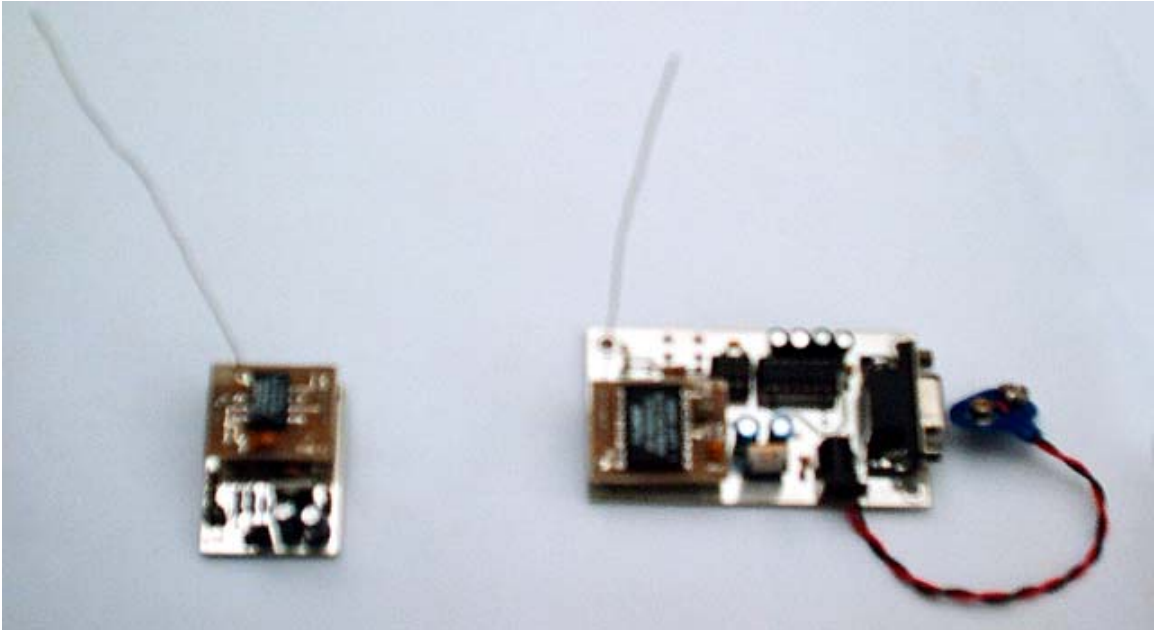
uTelemetry is a small and inexpensive telemetry system that will let you monitor the voltage, speed and temperatures in your system in realtime and wirelessly. It was primary designed for using with R/C car but it will be useful to many people who doesn't interesting in R/C car as well for many data acquisition tasks.

uTelemetry hardware consist of 2 devices. The first one is a small device for installed in your R/C car. This one will be called Transmitter in this document. The 68HC908QT4 in the Transmitter will measure the battery voltage ,temperatures,speed and send it to the receiver by a 433MHz RF module.The voltage is measured by internal 8bit ADC. The temperatures are also measured by internal 8bit ADC with 2 NTC thermistors. The speed is measured by a pair of Infrared diode/phototransistor and a reflector taped to the gear of a R/C car. The second part of uTelemetry system is the Receiver. Another 68HC908QT4 in the Receiver will receive the information from the Transmitter through the RF link and send it to the software on personal computer or other data acquisition system by an RS232 Interface.

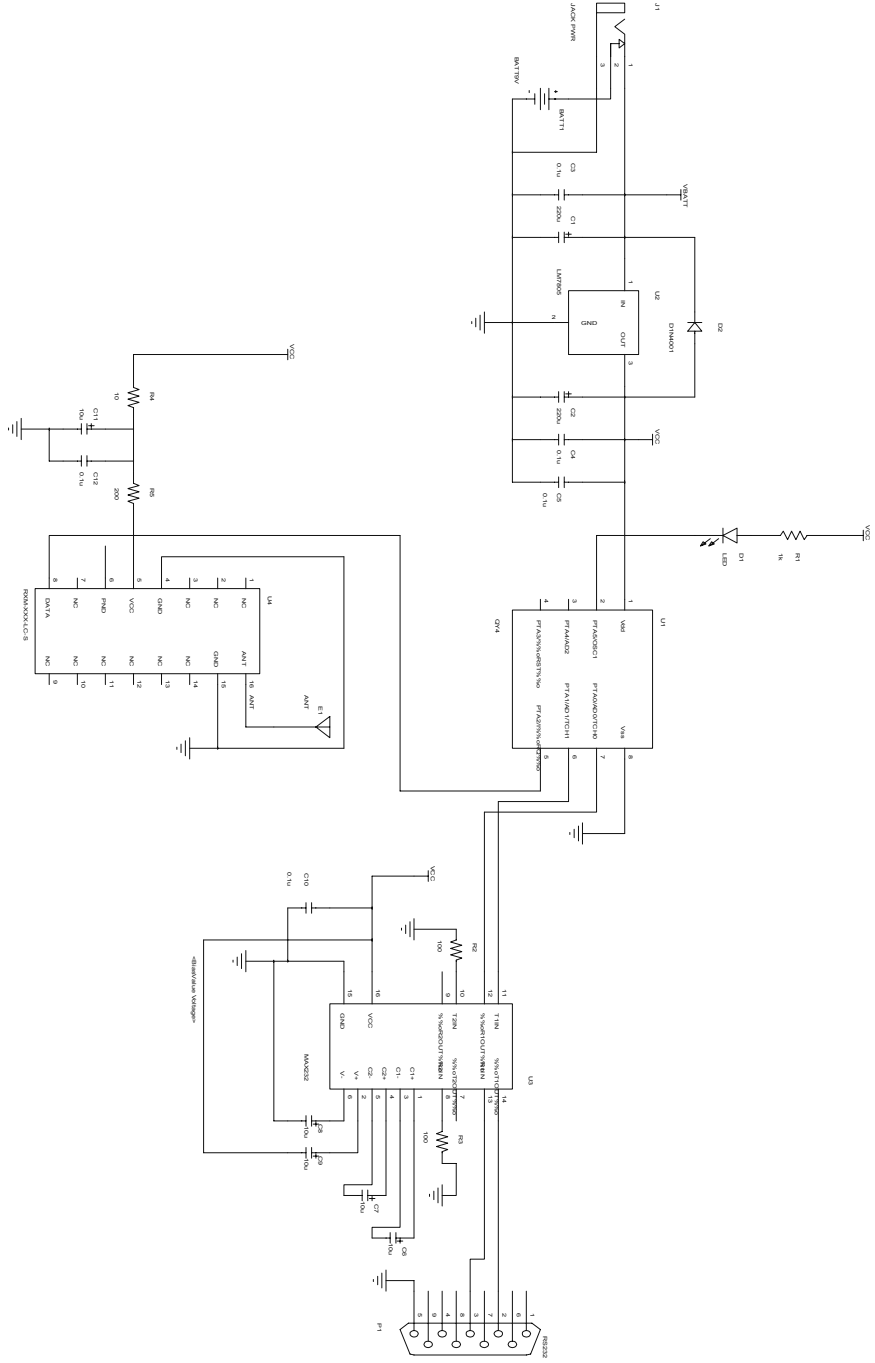
Block diagrams



uTelemetry Transmitter & Receiver



Receiver Schematic



Rev	0	Final Revision Change Control 2003 P/N: 17008
Title	B	Document Number
Issue	B	Ultimate Release Document
Date	01/01/2003	Version

Code Examples :

```
void rfprot_send(unsigned char data)
{
    unsigned char i;
    unsigned char parity;

    parity=0;
    RFDATA_SetVal();
    rfprot_delay();
    for(i=0;i<8;i++){
        if(data&0x01){
            RFDATA_ClrVal();
            parity++;
        }else{
            RFDATA_SetVal();
        }
        data>>=1;
        rfprot_delay();
    }
    if(parity&0x01){
        RFDATA_SetVal();
    }else{
        RFDATA_ClrVal();
    }
    rfprot_delay();
    RFDATA_ClrVal();
    rfprot_delay();
    rfprot_delay();
    rfprot_delay();
}
```