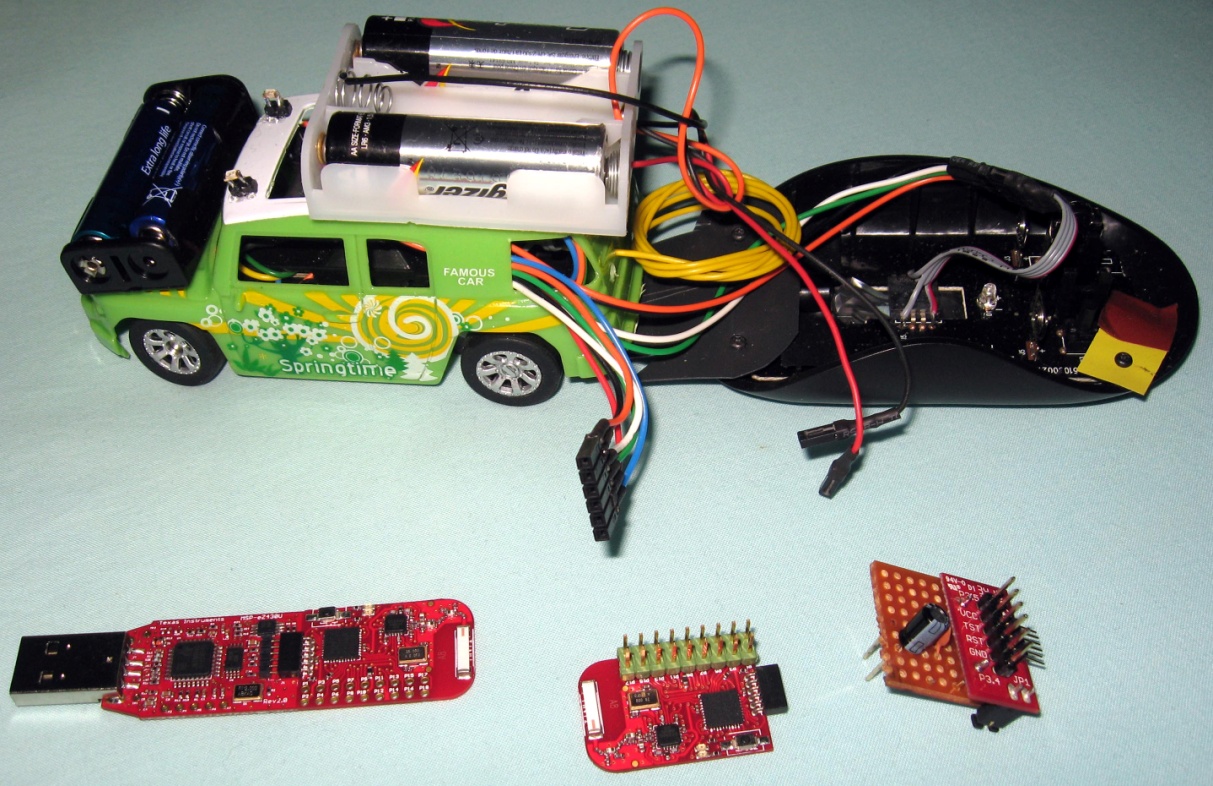
User Manual

# Provided Elements

The refitted toy car set includes:

1. The refitted car with the mouse and battery holder attached
2. The power regulation circuit
3. Car Serial Wireless ( Optional )
4. PC Serial Wireless ( Optional )

# Toy car

Figure Refitted Toy Car Elements

## Connections

The toy car has 2 connections noted 1a and 1b. See Fig. 1. 1a is the battery connection supplying a nominal voltage of 6V. This connection plugs onto *the power regulation circuit*, battery input. The connection 1b is the car power supply, the micro-controller programming and serial lines. This connection plugs into the *power regulation circuit* car output. **Care should be use to plug this connector correctly.** Red wire connects to VCC. Black wire connects to GND. White wire connects to RST. Green wire connects to TST. The orange and blue wires are serial Rx, Tx respectively.

## Battery

The toy car has two battery holders, one on the hood holding two AAA batteries. The second is on top of the car holding two AA batteries.

**WARRNING:** The battery holder on top of the car only holds two batteries. No battery should be placed in the middle slot.

# Power Regulation Circuit

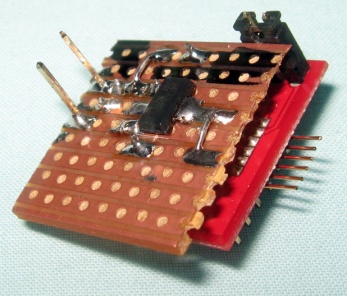
The power regulation circuit has a battery input and a car output. The car output is a 6 pin header with labels VCC, TST, RST, GND. The battery input is shown in Fig 2. The pin labelled 2, close to the black mark is the ground. The black wire from the battery should be connected to pin 2. The pin labelled 3 is the battery high potential ( Battery + ). The red wire from the battery should be connected to pin 3.

Figure Battery Input

**WARRNING:** The battery connection 1a shown in Fig. 1 should be correctly connection to the *power regulation circuit*. Failure to do so will result in the damage of the circuit and the car.

The *power regulation circuit* has a ground jumper, labelled 1 in Fig. 2. Removing the jumper disable power to any device connected to the *power regulation circuit*. The 3.3V regulator is still connected to the battery.

# Serial Wireless Option

The refitted toy car set has a serial wireless option which allows remote communication. The serial wireless option has 2 elements, on goes on the car, the other is connected to the computer.

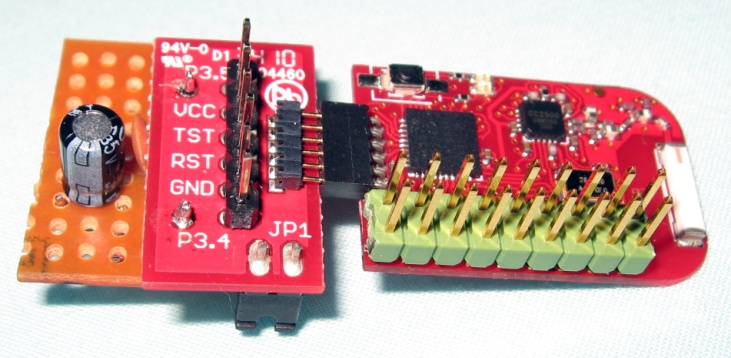
The car element connects as shown in Figure 3. The PCB of the element must be on the same plane as the *power regulation circuit* red PCB.

Figure Car Element Connection

The PC element, Figure 4, plugs into a computer USB port. The received data is read with the serial port associated with the key usually: *MSP430 Application UART.* The serial settings are 9600 baud, 8 bit data, 1 bit stop, no parity.

The LEDs on the elements indicate communication when blinking. Both LED on the PC element may flash together indicating that the element waits for the Car Element to be ready.

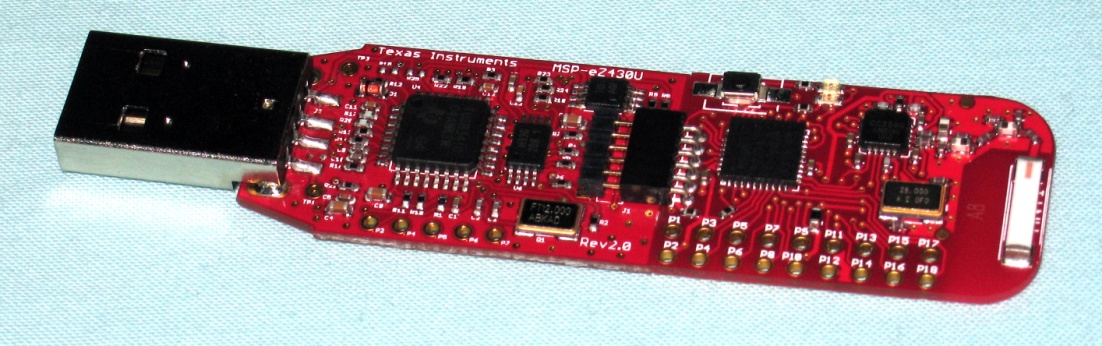


Figure PC Element