DOCUMENTATION for ROACHLIB module

Rev : January 9, 2006

Purpose of Module

This module provides functions to control the motors, read the light sensor, and read the bumper sensors on the CMPE118 Cockroach 3000.

INTERFACE

Module Functions

RoachInit

```
PROTOTYPE:  void RoachInit(void)
CONTENTS:   This is the initialization routine for the Roach functions.
PARAMETERS:
            none
RETURNS:
            nothing
```

RightMtrSpeed

```
PROTOTYPE:  uchar RighMtrSpeed(char newSpeed)
CONTENTS:   This function is used to set the speed and direction of the right
            motor.  A negative value is reverse and 0 is stop.
PARAMETERS:
            NewSpeed -- a speed value between -10 and 10
RETURNS:
            OK_OPERATION == The registration was successful.
            ERR_BADSPEED == An invalid speed was given.
```

LeftMtrSpeed

```
PROTOTYPE:  uchar LeftMtrSpeed(char newSpeed)
CONTENTS:   This function is used to set the speed and direction of the left
            motor.  A negative value is reverse and 0 is stop.
PARAMETERS:
            NewSpeed -- a speed value between -10 and 10
RETURNS:
            OK_OPERATION == The registration was successful.
            ERR_BADSPEED == An invalid speed was given.
```

LightLevel

```
PROTOTYPE:  uchar LightLevel(void)
CONTENTS:   This will read the light sensor, returns a number proportional to
            the amount of light being received.
PARAMETERS:
            none
RETURNS:
            An 8-bit value indicating the amount of light present.
```

ReadFrontLeft, ReadFrontRight, ReadBackLeft, ReadBackRight

```
PROTOTYPE:  int ReadFrontLeft(void)
CONTENTS:   This will read the 10-bit magnetic field value for a bumper
            sensor.
PARAMETERS:
            none
RETURNS:
            An integer value corresponding to the magnetic field reading for
            the bump sensor.  The value should normally be around 512. If a
            bumper is hit, the corresponding value will swing high (towards
            1024) or low (towards 0) depending on the position of the magnet
            to the sensor.
```

IsFrontLeftBumped, IsFrontRightBumped, IsBackLeftBumped, IsBackRightBumped

```
PROTOTYPE:  int IsFrontLeftBumped(void)
CONTENTS:   This will check a bumper sensor and determine if a bump has
            occurred.
PARAMETERS:
            none
RETURNS:
            A non-zero value if a bump is detected or zero under normal
            conditions.
```