# DT228-1 Car Lab 2.

## *Objective:*

Extend the support library for the car to allow it use optical position sensors and hence follow a guiding black and white track.

## *Equipment*

MSP430 launchpad, Remote control car with 3V control unit wired for Launchpad control. A3 sheets for track and black markers

## *Input/Output List:*

| I/O Bit | Function |
|---|---|
| P1.0 | When 0 causes the car to drive forwards |
| P1.1 | When 0 causes the car to drive backwards |
| P1.2 | When 0 cause the car to turn right |
| P1.3 | When 0 causes the car to turn left |
| P1.4 | Optical sensor input, logic 1 when there is no reflection |
| P1.5 | Optical sensor input, logic 1 when there is no reflection |

## *Instructions*

1) Determine which bit of Port 1 is attached to each of the sensors on the car.
2) Write functions with the following prototype:

```
int LeftOfTrack(); ; // returns 1 if car is left of guiding track, 0 otherwise
int RightOfTrack(); ; // returns 1 if car is right of guiding track, 0 otherwise
```

3) Using these new functions and the other functions (TurnLeft,TurnRight, GoForwards, GoBackwards, GoStraight) program the Launchpad so that it steers the car along the track.
NOTE: Be sure to share the car fairly. Program your device at your desk and bring to the car to test.