ME 285 Mechatronic Systems Engineering

Homework #4: Interactive C Programming and Robot Control

1. Assume that you have a vehicle that is driven with two DC motors, MOTOR1 and
    MOTOR2, that are interfaced to the MOT1 and MOT2 pins of the motor port on the Handy
    Board. If both motors are driven forward, the vehicle moves forward in a straight line. If
    MOTOR1 is driven forward and MOTOR2 is driven backward, the vehicle will turn right. (A
    complementary action takes place if the motors are driven in a complementary fashion.) The
    vehicle will travel approximately its own length in one second if driven with both motors at
    full speed. The vehicle has two switches, SW1 and SW2, arranged in such a manner that if
    the vehicle runs straight into an object, like a wall, both switches will be closed. If the vehicle
    runs into an obstacle on its left side, only SW1 will be closed, and if it runs into something
    on its right side, only SW2 will be closed.

    Write some IC code that will cause the vehicle to travel and avoid obstacles. In other words,
    your vehicle should move straight ahead if nothing is in its path, but if it runs into something
    as sensed by the switches, it should take evasive action and attempt to continue on its way.