

# Accelerometer Controlled R/C Tank

A final project proposal for CMPEN 352W

by

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## Need Statement

The project will provide the user with an interactive method of controlling a R/C tank via a three vector accelerometer.

## Marketing Requirements

A modified R/C tank is fitted with three ultrasonic range sensors and a wireless communication protocol. The user has the option to drive the tank as an R/C tank with collision detection, or to let the tank drive autonomously.

## Level-0 Description

Module	R/C Tank
Inputs	Three ultrasonic range sensors, Xbee wireless interface
Outputs	Two independent motors to control drive, Xbee wireless interface
Behavior	The Xbee wireless interface accepts instructions from a transmitter that has varying speed and direction controls for each motor. Ultrasonic range sensors have the ability to overrun user input if an obstacle is encountered. The distance information is relayed back to the user.

Table 1: Level-0 Description for R/C Tank

Module	R/C Transmitter
Inputs	MMA7260 Accelerometer, Xbee wireless interface
Outputs	Xbee wireless interface
Behavior	The Xbee wireless interface transmits instructions from a transmitter provided by the tilt directions of the accelerometer. Information from the R/C tank is received to update and alert the user of obstacles.

Table 2: Level-0 Description for R/C Transmitter

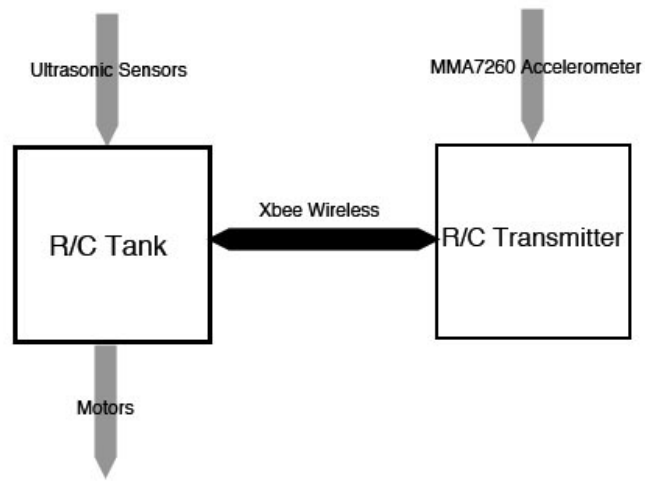


Figure 1: Level-0 Graphical Description