1. What difference did you notice between the motor/mav command and the mrp?

The motor/mav commands are dependent on the timing of the robot’s movement which intern is affected by battery levels, proper timing in the software, and our timing based on the speed we give the functions. The mrp command uses back-emf to determine how far the motors have turned which is far more reliable.

1. What issues did you encounter with using time of motor output as a control mechanism?

The times changed slightly each run, most likely due to the age of the CBCs, the reliability of the CBC batteries to provide a constant voltage, and the differences in our motors.

1. Why do you think issues are typically encountered when timing of motor output is the sole source of control?

Timing is dependent on the hardware being consistent which it typically is not. Battery levels have a huge impact.

1. How does monitoring the number of rotations of a shaft overcome the timing issues?

The number of rotations can be used to determine how far the robot has gone more consistently as it is not dependent on how much voltage the motors are given.

1. Describe your physical platform that you constructed – how you made it robust, the gear train between the motors, and the differentials, etc.

Our robot chassis is of a rectangular design for tank treads. Cross bracing is used to strengthen the lower and upper portions of the chassis. We are using a dual differential to ensure both treads move at nearly similar and consistent speeds.