

**Minutes 12/9/05 Team1720 Programmers Workshop**  
AT Building, Rm. 214, 5-7pm

Present: Ashley, Nathan, Morgan, Paul, Mike, Cheryl.

We worked on finding a way to govern the wheel speed to keep the driver from accelerating too fast. Excessive acceleration causes the wheels to spin and can cause the bot to lose balance, tip or fall over. We speculated that motor values that changed too fast from rapid joystick movement such as jamming in one direction or quick reversals could be governed with the application of a parabolic curve applied to the joystick output before it was applied to the motor. The following code was inserted into Default():

```
/*----- Analog Inputs (Joysticks) to PWM Outputs-----  
*-----  
* This maps the joystick axes to specific PWM outputs.  
*/  
  
if ((lastYa != p1_y) && (p1_y >= 127)){  
    p1number = (((p1_y - 127) * (p1_y - 127))/127) + 127;  
    lastYa = p1_y;  
}  
else {  
    p1number = -(((p1_y - 127) * (p1_y - 127))/127) + 127;  
    lastYa = p1_y;  
}  
  
pwm01 = p1number;  
pwm02 = p1number;  
  
if ((lastYb != p1_y) && (p1_y >= 127)){  
    p2number = (((p1_y - 127) * (p1_y - 127))/127) + 127;  
    lastYb = p1_y;  
}  
else {  
    p2number = -(((p1_y - 127) * (p1_y - 127))/127) + 127;  
    lastYb = p1_y;  
}  
  
pwm03 = p2number;  
pwm04 = p2number;  
  
printf("%d %d %d %d %d \r", p1_y, p2_y, p3_y, p1number, p2number);
```

An anomaly in the build caused the arm motor to run continuously so the code could not be debugged.

Paul and Morgan disassembled the arm drive motor coupling and found an out of center hole in a coupling link. Paul had a replacement piece machined and replaced it on Monday in time for the robot to be used for the Career Center demonstration. The motor turned the drive gear without wobbling.