

Pwm's and spikes

author: Andrew Lycas

ok so now that you have had some time to look around the default code, you should probably learn some of the robot related commands. Pwm's (it stands for something.. i dont remember) are analog moter outputs. Basically most moters will be pwm's. With a pwm u can control the speed of the moter, in either the forward or reverse direction.

-- from user routines fast --

```
pwm01 = pwm02 = pwm03 = pwm04 = pwm05 = pwm06 = pwm07 = pwm08 = 127;  
pwm09 = pwm10 = pwm11 = pwm12 = pwm13 = pwm14 = pwm15 = pwm16 = 127;
```

--

there are 16 pwm outputs that we can connect to.. we definatly cannot use all of them, that is absolutly crazy, but we do use up to about 6. u will notice that this part of the code that i took is from the initalization section, which means that this code should be setting all of the moters to a value of no moving.. well for a pwm 127 is neutral, it is not forward(>127) or reverse (<127). This may seem confusing, but it is just in place because there cannot be any negative numbers.

So if we had pwm 1,2,3,4 all hooked up as the four drive moters, we could say:

--

```
pwm01 = pwm02 = pwm03 = pwm04 = 200 ;
```

--

and the robot would move forward at a pretty good speed. The highest speed is 254 in the forward direction, and 0 in the reverse direction.

The only time you really need to hard code vaules into the pwm's is in automous code, and maybe if you have a shooter on the robot that you only wanting to go a certain speed.

Now, for control with a joystick, we will get into that later just for now know what pwm's are and how to hard code values to them

spikes, or relays (we call them spikes, in the code they are relays) are like pwms, however they are digital.

Each spike has two variables to it, for relay 1 they are relay1_fwd and relay1_rev. When they are both at 0, the moter is neutral, when fwd = 1 it rolls forward, and if rwd = 1 its reverse. Having them both on 1 should stop the moter in a lock, but NEVER have them both equaling 1.. it will burn up something and then we have to repleace it which is no fun

-- from user_routines_fast

```
relay1_fwd = relay1_rev = relay2_fwd = relay2_rev = 0;
```

--

the above code sets relay 1 and relay 2 to neutral

--

```
relay1_fwd = relay2_fwd = 1;
```

--

the code on the last page would set the 2 relays to the forward direction.

Pwms and spikes are very easy to program, just a few reminders about them:

the spike forward and reverse directions are at full, there is no speed control when using spikes
be careful what speed you set the pwm's to.

Too little and its too slow

too fast and you could kill the robot..

if there are any questions, yeah just ask 'em