**Response of Driver Controls to Various Inputs**

Version 1.0

*Drive/gear*

Gear information (neutral, forward, or reverse) comes from the steering wheel. The gear from the steering wheel can be overridden by activating the regen pedal, which in turn can be overridden by the brake. In other words, the brake has priority over everything, regen has priority over the gear, and the gear is taken into account only when the regen pedal and brake are not active.

Here is the content of the CAN packet sent to the motor controller according to each state:

* Brake: velocity is 0, current is 1
* Regen: velocity is 0, current is the regen pedal ratio (proportion of maximum voltage)
* Neutral: velocity is 0, current is 0
* Forward: velocity is 100, current is the acceleration pedal ratio (proportion of maximum voltage, up to a limit of 0.8)
* Reverse: velocity is 100, current is the negative of the acceleration pedal ratio

*Turn Signals*

The driver controls reads three different flags from the steering wheel CAN packet: hazards, right turn, and left turn. When the one of those flags is on, the corresponding turn signal (or both if hazards are active) is toggled every half second.

The hazards input overrides either turn signal input; in other words, if the hazards flag is on, the driver controls will ignore the right and left turn signal flags.

*Other*

* Brake lights: on when the brake is engaged
* Headlights: on when the headlight flag in the steering wheel CAN packet is on
* Horn: on when the horn flag in the steering wheel CAN packet is on