Solar team - Driver Interface - Requirements

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I. Introduction

The following document will specify the requirements of the driver interface. This document will be written in conjunction with other sub-domains of the electronics domain in Mälardalens Högskola Solar Team and will be divided into two parts, one external and one internal. The external part relates to all that is restrained from Bridgestone World Solar Challenge (BWSC) while the internal part is restrained by other sub-domains of the electronics domain in MDH Solar Team.

II. Requirements

The following is either specified in BWSC regulation or presented as a need from the electronics domain

- The speed of the car should be presented to the driver at all times.
- Whether the direction indicators are operating. This will be done through feedback from the specific circuit controlling the indicator that is activated.
- The driver should be able to enable / disable direction indicators.
- Whether the hazard lights are operating. This will be done through feedback from the specific circuit controlling the indicator that is activated.
- Current systems status, such as Bluetooth low energy (BLE) connection to the car behind or error codes from the battery. Should also include the current battery-level.
- Electronic rear vision images , should always show its feed while the car in turned on.
- A *safe state* switch should be present which the driver must be able to do with a single action from a driving position.
- The driver should be able to enable / disable cruise control. The driver should set a speed for the cruise controller to strive for. It should return to if the current speed exceeds it.
- The driver should be able to regulate speed through throttle and breaks. This will be done through separate inputs but also regenerative breaking using the motor-controller.
- System startup. This should be a manual sequence preformed from the drivers position.

All things implemented should be done in such a way that it will not obscure other instruments nor infringe on the drivers field of view.