1 Overview

Any complex electronic system will almost always require a control unit to operate it. This can take many forms, from off-the-shelf solutions to bespoke circuits. There are two aspects of control that must be designed for; the user interface to control the skateboard, battery management, and motor/drive train control.

2 User Interface

2.1 Throttle Control

The user needs to be able to control the speed of the board intuitively and quickly, to ensure safe riding. There are already pre-exisiting electic skatebaords that use a wireless controller with a roller as a throttle control. This allows for both accelerating, breaking, and reverse, with step wise control for fine adjustment. This only takes effect when a secondary button is held, acting as a dead-mans-switch.

2.2 Battery Meter

The user needs to be able to understand what the remaining range of the board is, so that they will not undertake a journey where they will run out of charge mid-journey.

3 Battery Management

3.1 Charging

Lithium Polymer batteries have a very high energy density, which although desirable, leads to a range of safety concerns, firstly how to charge them without causing a fire.

3.2 Discharging

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4 Motor Control

4.1 Motor control

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4.2 Feedback

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