



## Slip control for a 3-wheel electric motorcycle

*Design, implement and test a slip controller for an electric motorcycle.*

OMotion is located in Hjärup outside of Lund. We have developed a 3-wheel electric motorcycle. It has two wheels in the front and one in the back. The motor is a hub motor in the rear wheel. The top speed is 110 km/h and the range 100 km.

Our first version, OMotion ETR was ready last year. We have sold a handful of them, that are now out on the streets. But we have now started working with a new model that shall be ready in the spring 2021. The new model will have the same look and feel as the OMotion ETR, but with a lot of improvements.

One feature that we want to add is to control the slip of the rear wheel. There are two scenarios: One is that the rear wheel may lose grip when accelerating on a slippery surface, the other is that the rear wheel may be locked by the regenerative braking. We believe that a proper slip controller can take care of both these scenarios.

We have developed our own ECU, which means that the slip controller can be implemented in the vehicle and tested live.

