

# SUMO Dashboard

Researchers at CENTROGEO are running SUMO software that creates simulations of road traffic and allows researchers to observe unpredictable outcomes. This causes inconvenience for researchers and potentially slows down their workflow. This is because the software does not produce any means of graphical output and leaves researchers with data that has to be inspected by manually going through the produced files or writing individual python scripts that go through the data for them.

Automating the process of visualising data may help researchers see patterns between the data clearer and potentially saves time for them.

Thus the main idea behind this project is to create an interactive dashboard containing visualizations of statistics generated by SUMO software.

Our dashboard consists of two pages: A loginpage and a homepage.

It is important that the SUMO generated data stays safe, in other words, only researchers with permission to access the data should be able to do so. In order to guarantee this, a loginpage is required.

Once logged in, the user will be redirected to the homepage.

The visualization of statistics will happen here, as well as some other features.

However, in order to generate any graph, the user will have to upload a SUMO file first. Once a file(or multiple) is uploaded, the user can switch between these simulations, edit its metadata or perhaps when the user is done researching a certain file, they have the possibility to delete said file as well.

The data stored in the sumo files will be stored in a database, in order to generate all kinds of graphs. Creating a graph can be done multiple ways, depending on the desired graph. For generating a 'Lane transiting vehicles' graph for example, the user is required to select one or more lanes, while for a 'Average vehicle speed' graph, a simulation id is required.

When accidentally generating the wrong graph, the user has the possibility to undo this error.

If the researchers want to store their visualized data physically, they have the option to generate a report that will print all graphs currently on the page.