Data Journey:

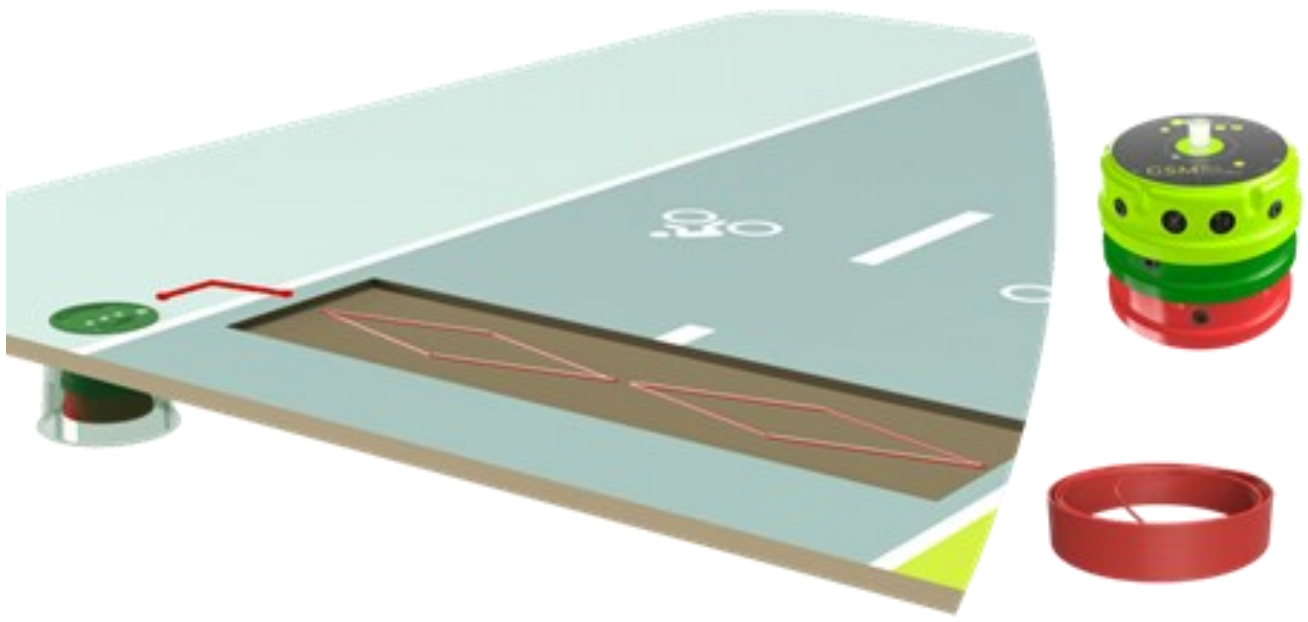
Permanent Bicycle Counters

The City of Frankfurt and the Federal State of Hessen installed 10 permanent bicycle counters beneath the streets to measure bike traffic at those selected locations. They cooperated with the company „Eco Counter“, which sells the model „ZELT“ used in Frankfurt.

Finished counter installation in an asphalted street →

Counter installation in a non-asphalted street ↓

Once installed, the counter runs up to two years, 24/7. It measures both directions with the induction loops placed under the street surface.

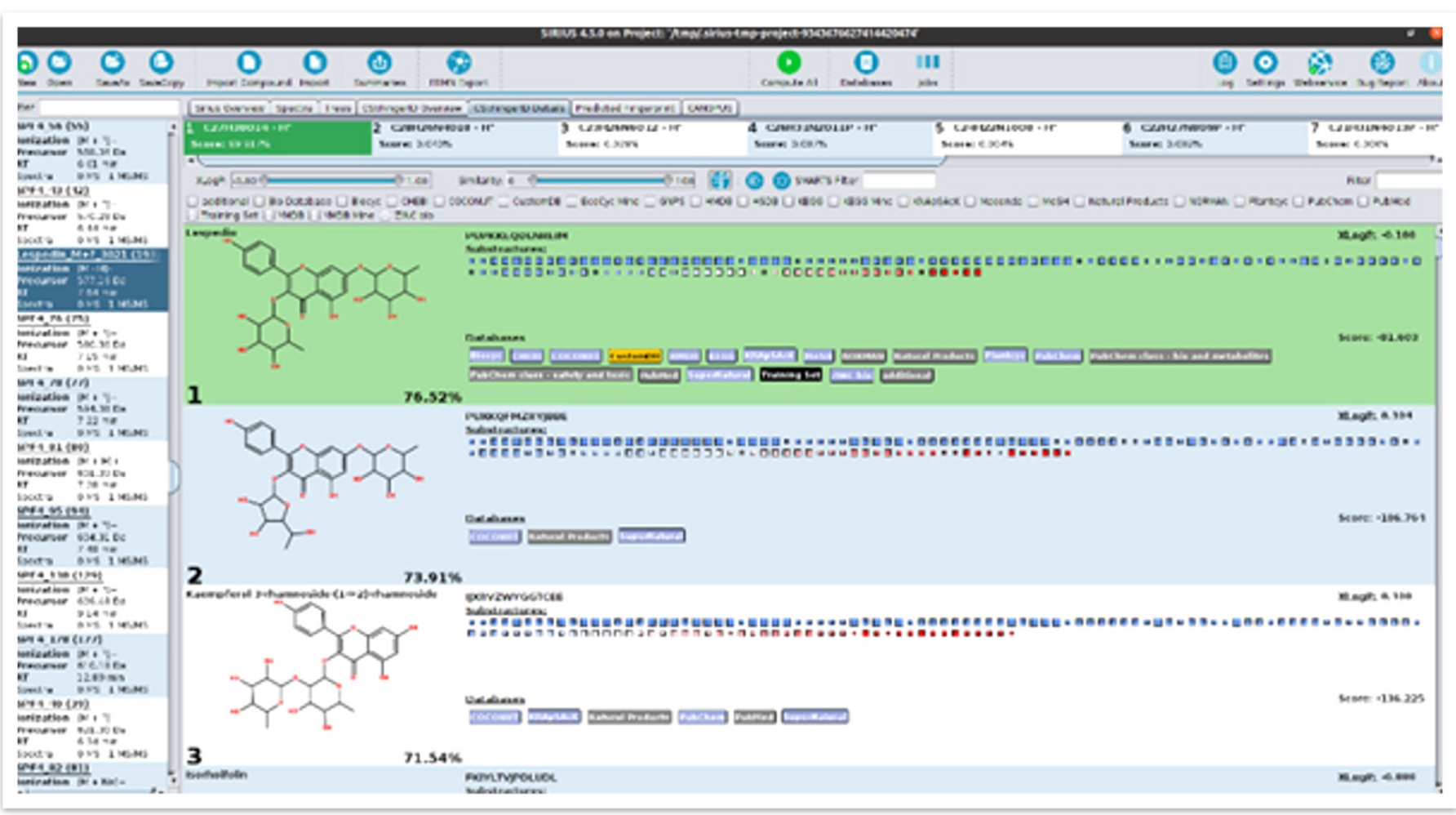


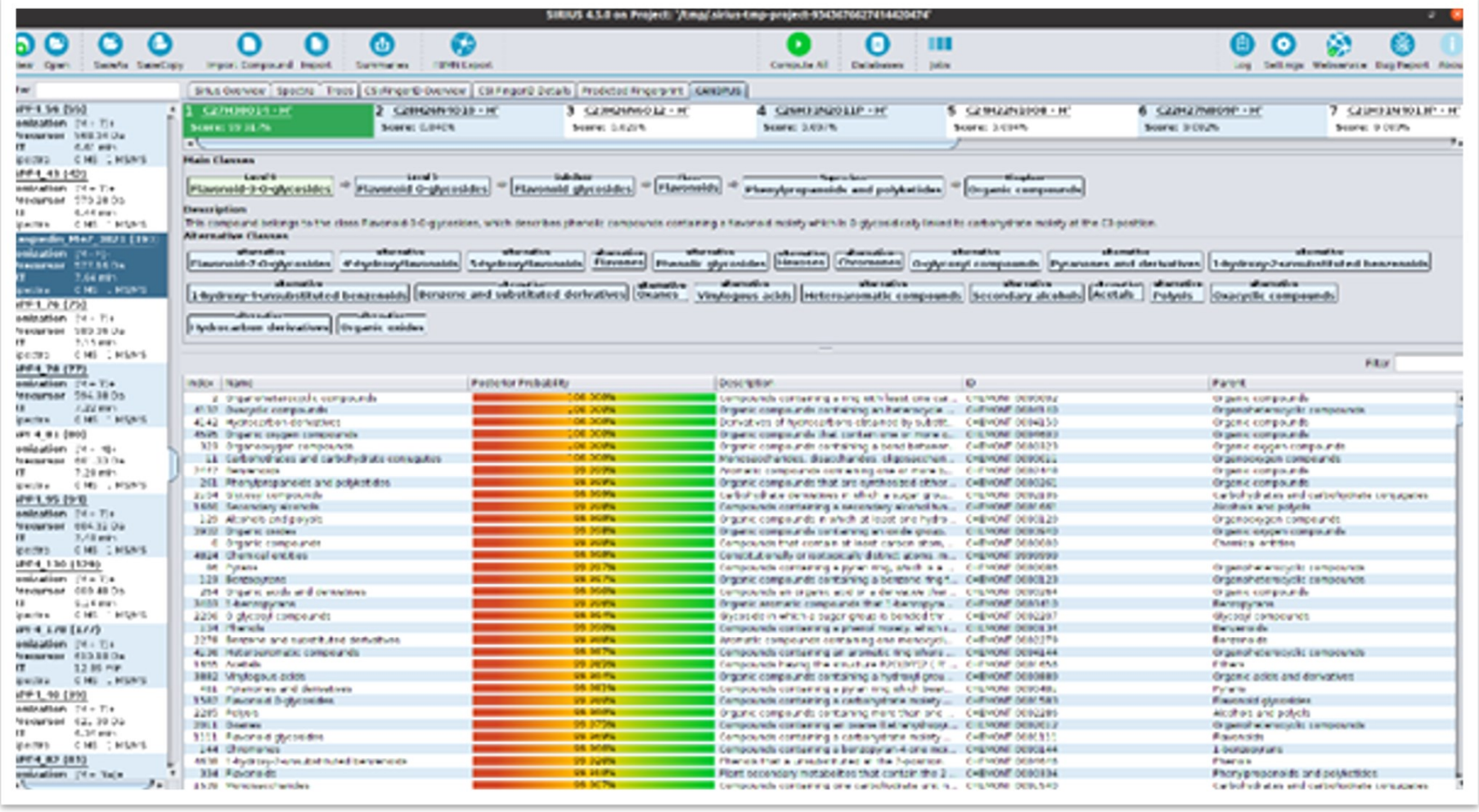
When an object passes the loops, the counter on the streetside automatically identifies it.

Inside the Bicycle Counter

To identify if a passing object is a bike, the counter uses an algorithmic system called „SIRIUS“. It differentiates the physical input by 13 criteria, which help to decode the bicycles' electro-magnetic "fingerprint". This allows for different types of bikes with different frames to be detected.

The counter hence is a measurement device (the induction loop) with a built-in algorithm that processes the input into a dataset, which can then be transmitted wirelessly.





Dashboard

The company Eco Counter also provides an analysis tool called „Eco-Visio“ for their counters. In Frankfurt, it is used to visualize the bike data in a public dashboard, which is updated by the counters daily.

This is the company‘s promotional video for the tool:

https://www.youtube.com/watch?v=ssEmpMWZjRs&t=5s

This is how the dashboard looks like:
↓

Trafic model

The city‘s traffic department also uses the counted bicycle data as one of the variables in their newly developed trafic model. The model‘s engineers provided us with a content list of their so-called „Data Hub“. Many of the other data points that make up the hub (and subsequently inform the trafic model) are structural / static in nature (for example commuting statistics of Frankfurt in 2019). Counting data is used, the enigneers say, to regularly „re-calibrate“ the model with updated information.