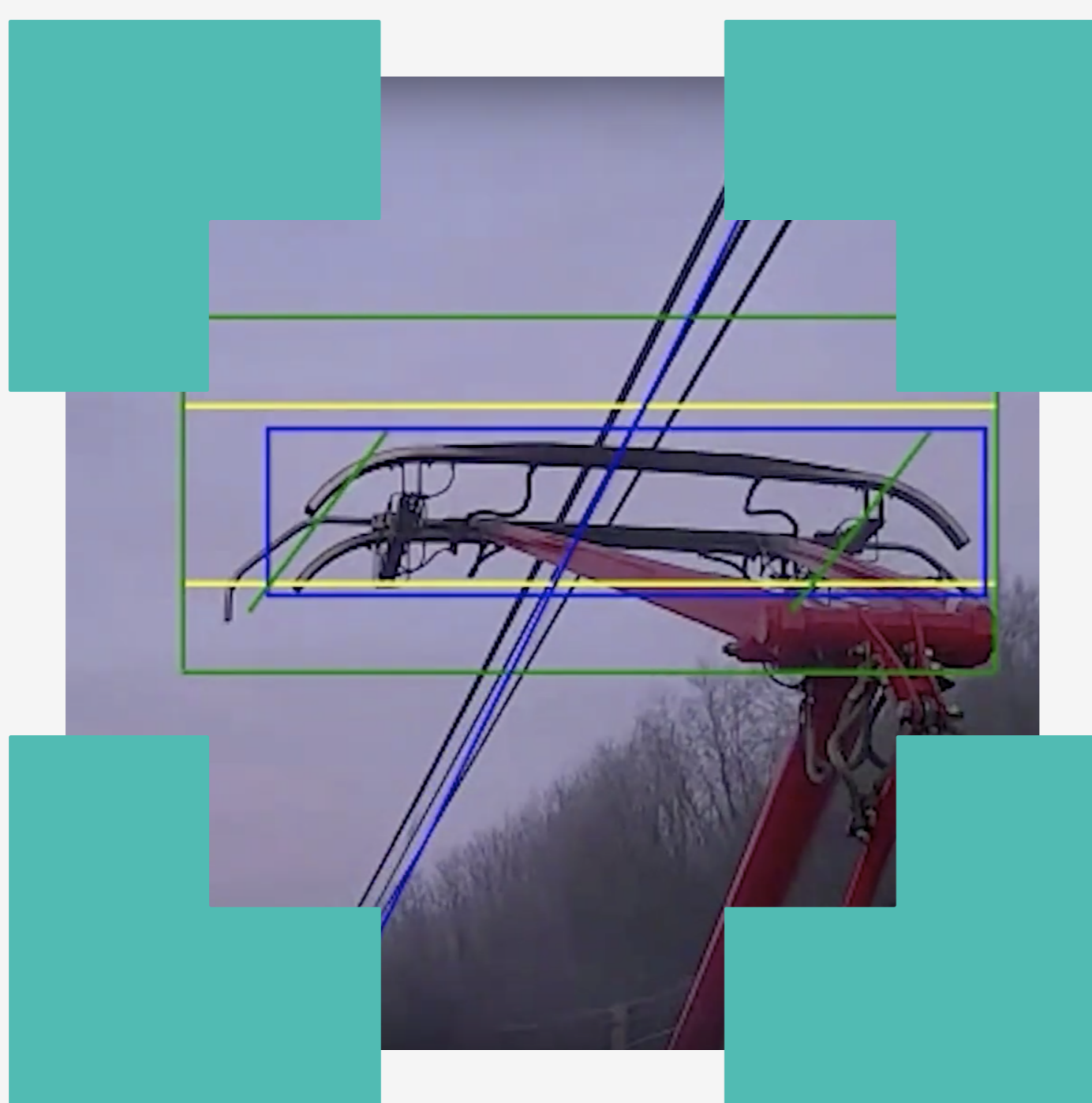


# Pantograph Monitoring

A single delayed train costs \$45,000 USD on average, and incidents of wire damage from pantographs can cost rail companies upwards of \$1 Million USD annually. Detecting anomalies before damage occurs drastically reduces the costs of monitoring and maintenance for pantograph-equipped train systems.

Noema uses smart cameras and computer vision to monitor train pantographs, drastically reducing pantograph-related maintenance costs and overhead wire damage. The app automatically monitors the overhead wires and the pantograph head, checking for positioning and sparking.

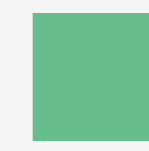


**Noema's Pantograph Monitoring application automatically detects high-risk operation and sparking, reducing monitoring and maintenance costs, and preventing damage or danger to the train and passengers.**

#### Features / Specs



Works with different pantograph & train types



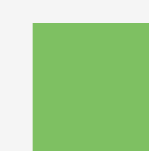
Records and timestamps events automatically



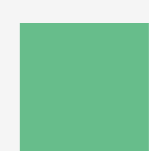
Variety of cameras supported



Works in all light & weather conditions

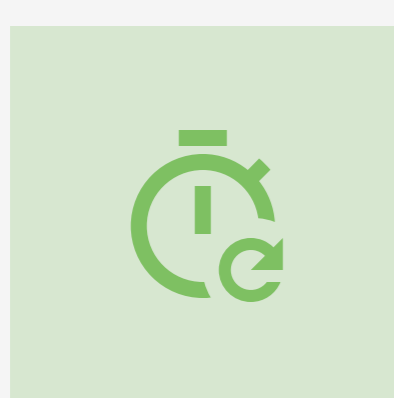


Accurately detects position in >99% of frames



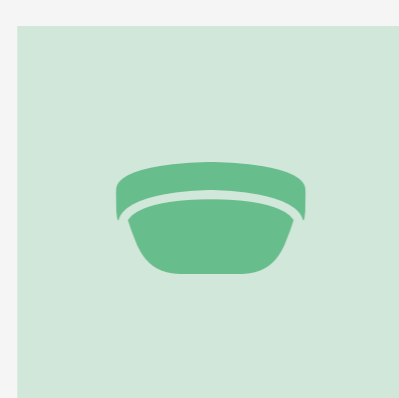
Easy configuration & use

contact@noema.tech  
www.noema.tech



### Automated, 24/7 monitoring

The app runs 24/7 and detects events with more consistency and accuracy than a human operator. Continuous pantograph monitoring is nearly impossible using human operators and automatic monitoring and alarms help further-reduce maintenance costs and response times.



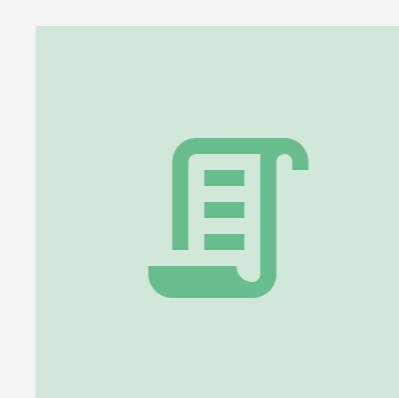
### Computing at the Edge

The app operates at the edge, meaning the algorithm runs entirely on the camera. No additional hardware or network connectivity required.



### Remote Installation & Configuration

Noema's computer vision applications are easy to install. Mount a new camera or equip an existing one and configure the application remotely. No additional on-site hardware or measurements are needed.



### Data and Integrations

Noema's Pantograph Monitoring application generates easily-digestible metadata that can be integrated into any backend or VMS.

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