Railway :

| **Product code** | CZK-Railway |
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| **Hardware Platform** | Edge: Nvidia Jetson Series, Sophgo Micro Servers  Central: Nvidia H100, L40, RTX 4000 Series, RTX 5000 Series Ada, A16, A30, Sophon AI server |
| **Operating System** | Ubuntu, MS Windows |
| **Management Interface** | Web-Based Management Software |
| **Database** | PostgreSQL |
| **Development Approach** | Microservice, containerized |
| **Frontend** | React |
| **Backend** | Python |
| **3rd party Integration** | 3rd Party API Integration  Camera Support: RTSP, ONVIF |
| **Keywords** |  |

### **1. Level Crossing Monitoring & Safety**

* **Obstacle Detection on Tracks – Identifies stalled vehicles, pedestrians, or objects blocking railway crossings.**
* **Unauthorized Pedestrian Crossing Detection – Alerts authorities if people cross tracks in unsafe areas.**
* **Automated Barrier Violation Detection – Detects vehicles bypassing closed level crossing gates.**
* **Red Light Violation Monitoring – Identifies vehicles ignoring railway warning signals.**

### **2. Traditional Railway Line Security**

* **Track Intrusion Detection – Identifies unauthorized individuals walking on tracks.**
* **Vandalism & Theft Monitoring – Detects suspicious activity near railway infrastructure (e.g., cable theft, trespassing).**
* **Railway Bridge & Tunnel Surveillance – Monitors critical infrastructure for security threats or structural issues.**
* **Fire & Smoke Detection – Alerts authorities to fire hazards in tunnels, stations, and along railway tracks.**
* **Station & Platform Surveillance – Identifies overcrowding, unattended luggage, or suspicious behavior.**
* **Railway Perimeter Security – Detects unauthorized entry near depots, maintenance yards, and trackside facilities.**

### **3. High-Speed Railway Line Video Analytics**

* **High-Speed Train Approach Warning – Alerts level crossings and stations about incoming high-speed trains.**
* **Railway Signal & Switch Monitoring – Identifies operational failures in railway signals and switching mechanisms.**
* **Perimeter Protection (line crossing, intrusion, region entrance, exit)**