Kineo
TRAFFIC ENGINEERING

WEIGHING SYSTEMS

- STATIC AND DINAMIC WEIGHING (WIM):
  - LOW SPEED (5-8 Km/h)
  - MEDIUM SPEED (40-50Km/h)
  - HIGH SPEED (UP TO 200 Km/h)
- DESIGN AND INSTALLATION OF WEIGHT STATION
- MODULAR CONTROL SOFTWARE FOR WEIGHT STATIONS.
- WEIGHING LARGE TONNAGE
  (STATIC AND DYNAMIC DUMPERS).
- WEIGHING OF AIRPLANES AND HELICOPTERS.
- DYNAMIC WEIGHING OF RAILWAY CARS.
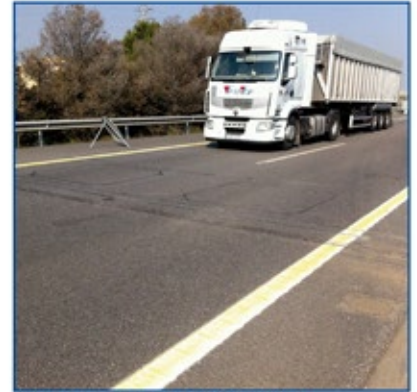
High-speed weighing HSWM (A2 Zaragoza).

Weigh station integrated with toll station (Uyuni-Bolivia).

Mobile LSWIM control in a toll station.

A5 HSWIM weighing system with quartz sensors and LPR (Mexico)

Low speed weighing in Valencia Port access.

Weighing lane with mobile platforms (Álava - Spain).

Dynamic weighing of railways.

**112 OPERATIONAL FACILITES IN 14 COUNTRIES
(HSWIM, MSWIM, LSWIM & STATIC)**

Intrusive and non-intrusive

- INDUCTIVE LOOP AND PIEZOELECTRIC.
- PNEUMATIC TUBE.
- LASER.
- RADAR, INFRARED AND ULTRASOUND.
- TRIPLE TECHNOLOGY.
- BLUETOOTH (ORIGIN/DESTINATION).
- VIDEO ANALISYS AND AID.
- COUNTER FOR BICYCLES AND PEDESTRIAN.
- REPORTING WEB SOFTWARE.

Installation of piezo-loop-piezo counters in Rajasthan (India).

Authomatic incidence detection (AID) in tunnel (A 24 Portugal).

Solar powered traffic counters in Lima.

Gantry with laser classification, RFID and LPR. Lamsac (Peru).

Counting system in D4R7 Bratislava.

Installation of counters and HSWIM on the Portuguese A4.

Non intrusive counting with lateral doppler counter

Triple technology classifier at the Port of Valencia (Spain).

6138 LANES OF COUNTING AND CLASSIFICATION INSTALLED TURNKEY IN 4 CONTINENTS

COUNTING AND CLASSIFICATION

3

Global Platform of identification and access control.

KINEO ACCESS CONTROL

- LICENCE PLATE RECOGNITION (LPR)
- CONTAINER CODE RECOGNITION (ACCR).
- RADIO FREQUENCY (TAGS, CARDS, ETC.)
- PRIORITY OF ACCESS AND TRANSIT.
- BIOMETRIC SYSTEMS.
- CCTV AND VIDEOWALL

ACCESS CONTROL

LPR installation in Mexican highway.

ACCR+LPR and vehicle control in Ethiopia.

CCTV with solar power supply installation. A66 and CM42.

Pedestrian area access control for vehicles in Coruña.

LPR and lane management LAMSAC (Peru).

Access Control with RFID and license plate reading at Cimpor Group.

Caceres Parking (Lima) LPR.

INTERNATIONAL EXPERIENCE WITH READING LICENSE PLATES AND CONTAINERS

Classic toll and free flow - Proprietary software

Conventional toll at tunnel entrance (Artxanda, Spain).

CLASSIC TOLL
- MANUAL LANES
- ETC LANES
- UNATTENDED ATPM LANES
- SHADOW TOLL IN FREE FLOW WITH SINGLE/DUAL AXEL DETECTION

FREE-FLOW TOLL
- DSRC MULTILANE READER - LIDAR 3D CLASSIFICATION - LPR

COMPLETE SOLUTION
- LMS - LANE MANAGEMENT SYSTEM
- TPMS - TOLL PLAZA MANAGEMENT SYSTEM
- CCS– CENTRAL COORDINATION SYSTEM
- BO - BACK-OFFICE – OPERATIONAL BO & COMMERCIAL BO

Peaje ICCU en Cundinamarca (Colombia).

ATPM developed by Kineo

Free Flow Barcelona - España.

CUSTOM SOFTWARE. REFERENCES IN 23 COUNTRIES

Kineo
TRAFFIC ENGINEERING

TOLL SOLUTIONS SYSTEMS

OTHER ITS SYSTEM

. COUNTING AND CLASSIFICATION
. SCADA FOR CCO
· CCTV, LPR AND ACCR
· WEATHER AND ENVIRONMENTAL STATION
· INDOOR AND AUTDOOR SOFTWARE IAD
· VARIABLE MESSAGE SIGNS
· VIDEO TRAFFIC ANALYTICS
· TRAFFIC LIGHT MANAGEMENT
· OVERSIZE CONTROL (1D, 2D, 3D)
· SOS SYSTEMS
· TUNNEL SCADA

CCTV with solar power supply

Weather station in Azores

VMS installation in Portugal

Servers rack in CCO

INTERNATIONAL EXPERIENCE IN ITS TURN KEY PROJETS

Global presence

- KINEO IS PRESENT IN PERU WITH KINEO ITD SAC SINCE 2012 AND IN PORTUGAL SINCE 2013 AND COLOMBIA WITH KINEO IDT SAS SINCE 2020.

- WE OFFER OUR DESING, INSTALLATION AND COMMISIONING SERVICES FOR WEIGH STATIONS, AS WELL AS FOR COUNTING, CLASSIFICATION, AND ITS SYSTEMS IN GENERAL, AND FOR ACCESS CONTROL PROJECTS AND INDUSTRIAL PROCESS AUTOMATION PROJECTS IN ANY PART OF THE WORLD.

- WE HAVE DEVELOPED PROJECTS WITH INSTALLATION SERVICES IN INDIA, PERU, COLOMBIA, CHILE, BOLIVIA, PORTUGAL, KUWAIT, MEXICO, KYRGYZSTAN, ETHIOPIA, MOROCCO, PARAGUAY, ETC.

- OUR USUAL CUSTOMERS OVERSEAS ARE THE LARGE TRAFFIC ENGINEERING FIRMS, CIVIL WORKS BUILDERS WITH DEVELOPMENT IN INTERNATIONAL BUSINESS AND GOVERNMENTS TO WHOM WE OFFER OUR PORTFOLIO OF SPECIALIZED SOLUTIONS AND A VERY HIGH LEVEL OF PERSONALISED SOFTWARE APPLICATIONS DEVELOPED BY KINEO, INCLUDING MULTILINGUAL CAPACITY.

- SOME OF OUR INTERNATIONAL PROJECTS INVOLVED VARIOUS MONTHS OF WORK WITH PERSONNEL OUT IN THE FIELD.

- WE WORK WITH ASSOCIATED COMPANIES IN SOME COUNTRIES OF LATIN AMERICA, AFRICA, THE MIDDLE EAST, ETC. THAT GIVE US LOCAL SUPPORT AND GENERATE BUSINESS COUNTING ON KINEO AS ITS EXTERNAL ENGINEERING DEPARTMENT OF TRAFFIC.

Installation of weigh station in Colombia.

Installation of weigh scales in Chile.

Counting station in the Azores.

HSWIM system in Agadir (Morocco).

HSWIM preselection system with LPR and VMS in Colombia.

Installation of counting and classification station in Lima.

Turnkey projects

SPAIN
- Toll software for AUTEMA, GEBISA, TRANSBISA, AUSOL, C16, AP8 and Artxanda tunnels
- 916 counting and classfication sites for central, regional and local road authorities and concessioners
- Traffic conter network maintenance contract for spanish mot (2014-2021)
- 4 Weigh stations static + HSWIM for spanish mot
- 23 CCTV cameras (7 of them with solar power supply) in autovia de los viñedos
- 15 Hswim sites for preselection or statistic proposes

PORTUGAL
- Complete ITS Renewal for Euroscut Azores (Cintra): SOS, PMV, Meteo, Counting System, Scada And CCO
- Dai in tunnels A23 And A24 (93 Cameras)
- 830 counters HITRAC UTCL, EMU and TMU4 for infraestructuras de Portugal (IP)
- 244 Lanes Loop-piezo Loop + 6 HSWIM sites In A4-Ip4 Transmontana
- Renewal of CCYV and videowall in A22 and 28 concessions
- HSWIM Systems In A41, A25, A23, Etc
- IMO detection systems in tunnel access in A23

KUWAIT
- Kuwait traffic monitoring system: 145 lanes (loop-piezo-loop) for counting and classification (13 Classes) and 58 lanes HSWIM (piezo-loop-piezo). Complete installation and commisioning.

PERU
- Network of counting and classification stations (Loop-loop) in Lima. 17 sites / 76 lanes
- 1 toll station (4 lines) in Hunauco-La Union CR20-Provias
- 59 Portable scales Cet 10-68 Captels for transport inspection MTC and Concessionaires and road conservators
- LPR systems at toll stations of the Lamsac Lima Concessionaire (52 Lanes)
- Weighing station for Concessionaire Conalvias (Peruvian MTC)

BOLIVIA
- 4 weigh stations LSWIM + MSWIM for ABC Bolivian Road Authority
- 4 HSWIM in MALLAS 2, 3 and 4 Santa Cruz-Yupacani and Basilio-Cabeza
- 12 toll stations in MALLAS 3, 4 and 5, San Borja, Yupacani, Boyuibe and Basilio-Cabeza
- 7 weigh stations in MALLAS 3, 4 and 5, San Borja, Buyuibe and Basilio-Cabeza

COSTA RICA
- 12 counting sites (37 lanes) AVC. San José Ruta Del Sol

COLOMBIA
- 2 weigh stations for colombian mot in Ruta del Sol Concession (MSWIM + STATIC)
- 3 sites "shadow toll" with single/dual tyre axel detection in concessions
- 2 sites HSWIM (A5 quartz sensors) + LPR for DEVISAB Concessioner
- 5 toll stations for ICCU
- 2 weigh + 2 toll stations. MAR2 Concession

CHILE
- 4 weigh stations for Chilean MOT Rutas del Desierto concessions R-1 and R-16
- AVO tunnels in Santiago de Chile. 20 counting and classification sites AVC

SLOVAKIA
- D4R7 highway (FERROVIAL). 4 HSWIM sites and 14 counting sites AVC

MEXICO
- 3 sites HSWIM (A5) + LPR (16 lanes) for CAPUFE / SCT Mexican road authority
- Network of counting and classification stations (LOOP-LOOP) in the mexican circuit. 14 sites / 54 lanes
- 17 sites HSWIM for INDRA-ABERTIS in Michoacan and 2 sites A5 in Peyote

INDIA
- 3 sites for counting and classification (PIEZO-LOOP-PIEZO) 12 lanes. Bewar (Rajastan) for road concessioner

PARAGUAY
- 5 Weigh station LSWIM + MSWIM. Loma Plata, Concorsi, Consorcio Boqueron and Ilsung
- 4 portable scales 10-68 for transport inspection. MOPC

ETIOPIA
- ACCR+LPR control access system. 8 lanes in Modjo dry port

MOROCCO
- 40 sites for counting and classification and 4 HSWIM sites with infrasolutions

18 TOLL LANES ON THE AIRPORT-BILBAO CONNECTION (BASQUE COUNTRY), WITH 25,000 VEHICLES/DAY. UPDATE OF ALL SOFTWARE IN 2016.

FULL LAYOUT
- 7 manual central lanes + 3 reversible lanes. They can work as automatic unattended (card + RFID) or dedicated single category or mixed (only RFID)
- 8 lateral automatic lanes, 4 in each direction. From the center to the outermost part:
    - 1 multi-category mixed automatic lane (RFID+Card).
    - 1 light-only single category automatic lane (RFID+Card).
    - 2 dedicated fast forward lanes only RFID including sack. The same the other way.

MEANS OF PAYMENT: Private card (REPSOL, DKV...), bank card (VISA, MASTERCARD, AMEX...), RFID interoperable ViaT system, cash and special document

MANAGED RATES: Variable rate based on schedules, flat rate by means of payment and exempt

PERFORMANCE STATISTICS:
- CLASSIFICATION EFFICIENCY, DAC LANE: 99,95%
- CLASSIFICATION EFFICIENC, BACK-OFFICE CONSOLIDATED: 99,52%
- BACK-OFFICE DAC RECLASSIFICATION: 0,48%
- TOLL VIOLATION: 0,8 per 1.000 transactions.
- USER VIOLATION: 0,1 per1.000 transactions.
- PASS SIMULATION: 0,2 per 1000 transactions.

ICCU TOLL STATIONS IN CUNDINAMARCA (COLOMBIA)

Installation in 2021 and 2022 of 5 manual/semi-automatic toll stations at the San Miguel, Nuevo Salto, La Balsa, Pacho and Amoladero tolls, with IP-REV integration, post-classification system and manual reversibility. Customized lane and back-office software.

In parallel, 2 toll areas have been installed for MAR2 concessionaire with 4 lanes each, also under the "turnkey" model and according to ANI guidelines. 8 tool stations with post - classification are also being installed in Bolivia in 2021 - 2023 according to VIAS BOLIVIA specifications.

PLATES AND CONTAINER CODE RECOGNITION (LPR+ACCR) IN ETHIOPIA

Installation of 8 container code recognition lanes and 2 other railway systems at the Modjo dry port terminal in Ethiopia. In truck lanes front and rear license plate reading (LPR) is included in addition to the ACCR with 3 cameras. Systems installed taking advantage of the access structure to the dry port.

They have LED illuminators activated by a twilight sensor, IR curtains to activate the system, entry and exit traffic lights and a laser curtain to detect trucks without a container. The system stores photos and videos from the 3 ACCR cameras and the front and rear CCTV for access auditing and the status of the containers at the entrance and exit. Also photo of the container seal. Integrated system in the port SCADA. The railway tracks entering and exiting the terminal also have an identification system for containers on board trains.

CASE STUDIES

Kineo TRAFFIC ENGINEERING

SPANISH MOT TRAFFIC CONTING NETWORK MAINTENANCE SERVICE.

Since 2014, Kineo has been carrying out maintenance works on the central government counting network in Spain with more than 5000 sites from 2 to 10 lanes between permanent stations and secondary. Kineo is also responsible for the repair of the nearly 1,000 counters that the MOT has deployed between the permanent and temporary stations.

At the same time, Kineo installs dozens of new counting sites for civil works construction companies in new road construction or reforms of the existing. Between 2020 and 2021 we have installed 120 new counting stations in AP7, AP4 and AP2.

MANAGEMENT OF THE DIRECTIONALITY OF THE BIELSA-ARAGNOUET TUNNEL, PYRENEES.

Cross-border tunnel of Bielsa- Aragnouet, 3.070 meters long and located at almost 1.800 meters elevation. Management of the uni/bidirectionality of the tunnel (narrow lanes of 2.60 m) depending on the type of traffic recorded by eight data measurement points at 5 km, 300 m, 30 m, and 20 m inside the tunnel on both sides. With this data, the system manages the ventilation, traffic lights, indicator panels, etc. A piezo-loop-piezo system for data collection in any environmental condition controls the flow in seven areas inside the tunnel to determine the position of stopped vehicles.

SIMILAR PROJECTS: Cotefablo Tunnel on the N-260 in the Huesca Pyrenees. 690 meters long with 2.5 m wide lanes and at 1420 meters elevation. This includes the management of traffic lights. This system is also installed in the FEVE Corrales tunnel (Cantabria).

CORUÑA SMART CITY: CONTROL OF RESTRICTED PEDESTRIAN ZONE, RED LIGHT PHOTOS, COUNTING, CLASSIFICATION, AND TRACKING BY VIDEO OF ILLEGAL PARKING (DOUBLE PARKING, LOADING AND UNLOADING, AND BUS STOP).

Project focused on improving the traffic in Coruña through the use of non-intrusive technology such as the detection by video analysis of illegal parking (VPV - Velocity Profile Viewer) at 19 points, the counting, classification, and tracking of vehicles by video and ANPR at 5 points, and the detection of jumping traffic lights at 4 points. In addition, different restricted pedestrian areas are controlled (ZPR) through license plate recognition to identify authorized vehicles according to different access profiles in free-flow mode (without bollards, for example). There are 26 ZPR zones each of which has a license plate camera and a context camera to generate valid evidence to justify a fine for infractions, similar to the VPV and Red Light Photo zones. This evidence is managed from a web application.

NATIONAL TRAFFIC COUNTER NETWORK IN PORTUGAL (INFRAESTRUTURAS DE PORTUGAL)

Since 2016, KINEO has provided over 900 pieces of equipment for counting and classification (HITRAC UTCL and EMU3). These have been employed to renew and extend the counting and classification infrastructure of the Portuguese road network. Regarding the HITRAC UTCL, it is part of a solution that includes a small pillar, ondemand data transmission, and solar power that provides autonomy for the system. It includes communication software and various modules that integrate data from legacy equipment of several manufacturers. The solution is so low profile that to the present date no unit has been vandalized.

As part of renewal programs of data acquisition stations in private concessionaires, KINEO has also installed dozens of HITRAC counting stations and several HSWIM stations.

3 HSWIM SITES WITH A5 PRECISION QUARTZ SENSORS AND LPR FOR ALDESA-CAPUFETE (MEXICO). SIXTEEN SOLAR POWERED AVC LANES

Hight speed weighing stations with the highest precision available in the market for this type of technology. Sixteen Piezo-Loop-Piezo lanes with LPR and context image of the vehicle, powered by solar panels installed over the camera gantry. This is the most comprehensive HSWIM installed in Mexico at the present time. It meets CAFUTE's standards.

SIMILAR PROJECTS: Two preselection sites installed before weighing station Concessionary DEVISAB, Bogotá (Colombia). In total there are three A5 HSWIM and two classification lanes to detect evaders of the weigh control lane. All the five lanes have LPR, context image and FULL LED electronic panels (VMS) in both directions. The VMS shows the licence plate of the vehicles preselected for verification and indicates to access the weighing station.

TOLLING AND WEIGHING SYSTEMS IN BOLIVIA

KINEO has installed 12 weighing stations, 11 toll stations and 7 HSWIM sites in Bolivia since 2016 with ABC and VIAS Bolivia specifications. Some of those projects included integration of weight lanes into toll lanes, reducing the civil works and operation costs. All projects include sanctions module and a reporting module in web environments in the case of HSWIM systems.

- COLCHANI, CRUZ PAMPA and GUAQUI WEIGHING STATION: LSWIM system installed in a toll lane. Additionally, it has LPR and RFID identification, a CCTV system, an electronic panel, an automatic classification system and a weighing control office.

- MONTERO WEIGHING STATION: MSWIM preselection system and LSWIM type sanction. It includes an anti-evasion system in the trunk of the road and an escape detection system at the exit of the pre-selective lane. Additionally, it has a 3D sizer with SICK PROFILER, LPR and RFID identification, CCTV system, electronic panels, automatic classification system, ticket dispensing totem and weighing control office.

- 7 sites HSWIM SYSTEMS in MALLA 3, 4 AND 5 in Santa Cruz de la Sierra region: 2-lane installations with image registration of each vehicle. Data management in web environment.

- INSTALLATION OF 7 WEIGHING STATIONS IN MALLA, 3, 4 and 5, SAN BORJA, BOYUIBE, BASILIO and CABEZAS.
- 12 TOLL STATIONS of 2 to 6 lanes in MALLA 3, 4 and 5, SAN BORJA, BOYUIBE, BASILIO, CABEZAS and YAPACANI. All lanes has authomatic DAC and RFID antenna.

INTERNATIONAL TRAFFIC COUNTERS INSTALLATION: MORE THAN 900 LANES IN 14 COUNTRIES

Outside of Spain, KINEO has installed more than 900 lanes with loops and piezo. Examples are Indra on the Ajmer-Bewar highway in India, FCC A-4 in Portugal, Indra and CINTRA in Azores, Globalvía in Portugal and Costa Rica, Aleática in Circuito Exterior Mexiquense, Revenga and Ferrovial in D4R7 in Slovakia, AVO Tunnels for Sacyr and Revenga in Chile, Rutas del Desierto in Chile, Kuwait Traffic Management System with 200 lanes, of which 52 have been high-speed weighing lanes, etc. In all cases, the installations have been made with KINEO personnel and resources, including the integration of the data in the local applications.
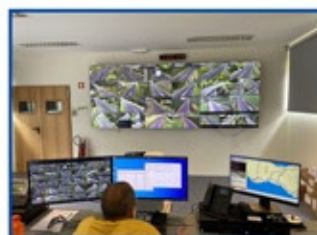
COMPLETE RENOVATION OF THE ITS OF EUROCUT AZORES (PORTUGAL)

KINEO has renewed in 2020 all the ITS systems of EUROSCUT AZORES, concessionaire with shadow toll of CINTRA (FERROVIAL). This project involved 20 ETDs and sensors (loop-piezo-loop) in 64 lanes, 43 PTZ cameras, 4 PMVs, 72 SOS posts, 4 weather stations, all the process and switching hardware of the CCO and the SCADA of the concessionaire. The renovation was completed in 5 months. KINEO maintains a technician on site during the 2 years of post-sale maintenance.

TECHNOLOGIES

Kineo
TRAFFIC ENGINEERING

4 lanes toll area in Bolivia.

Toll systems

Proprietary software

- Automatic, semiautomatic and manual lanes.
- Freeflow toll.
- Hardware and software installation or reuse of existing hardware.
- ATPM (own development - total flexibility).

Traffic counter and FO cabinet.

Counting and classification system

Intrusive and non-intrusive.

- Inductive loop and piezoelectric sensor.
- Laser classifier.
- Radar, infrared and ultrasound.
- Counting for bicycles and pedestrians.
- Video analytics.
- Bluetooth (origin/destination matrix).
- Pneumatic tube.

Weigh in motion station.

Weighing systems

Fixed and portable.

- Weigh stations design and installation.
- Static and dynamic weighing.
- Dynamic at low (5-8Km/h), medium (40-60 Km/h) and high speed (up to 200Km/h).
- Weighing large tonnage (static and dynamic for dumpers).
- Weighing of aircraft and helicopters.
- Weighing of railway (fixed and portable).

ACCR in Ethiopia dry port.

Identification and access control

Global platform for identification and access control. Kineo Access Control.

- License plate recognition (parking and free flow mode).
- Container code recognition (ACCR).
- Radio frequency (tags, cards, etc.).
- Biometric systems.
- CCTV and video analytics.

LPR in HSWIM site in Mexico.

Other ITS systems

- SOS post, VMS, CCO scada, tunnel scada, weather and environmental station, software AID, etc.
- Dimensional calculation of vehicles by laser and infrared.
- Traffic light controller integrable in existing networks.
- Systems of access and transit priority.
- Enforcement systems: over-speed, red-light foto, oversizes, double parking and intrusion through video analysis, etc.

**TRAFFIC ENGINEERING
INTEGRATION OF SYSTEMS AND ITS
EXPERIENCE WITH INTERNATIONAL INSTALLATIONS
COUNTING, WEIGHING, TOLL AND ACCESS CONTROL**

www.kineo.es