CVIS – London Test Site

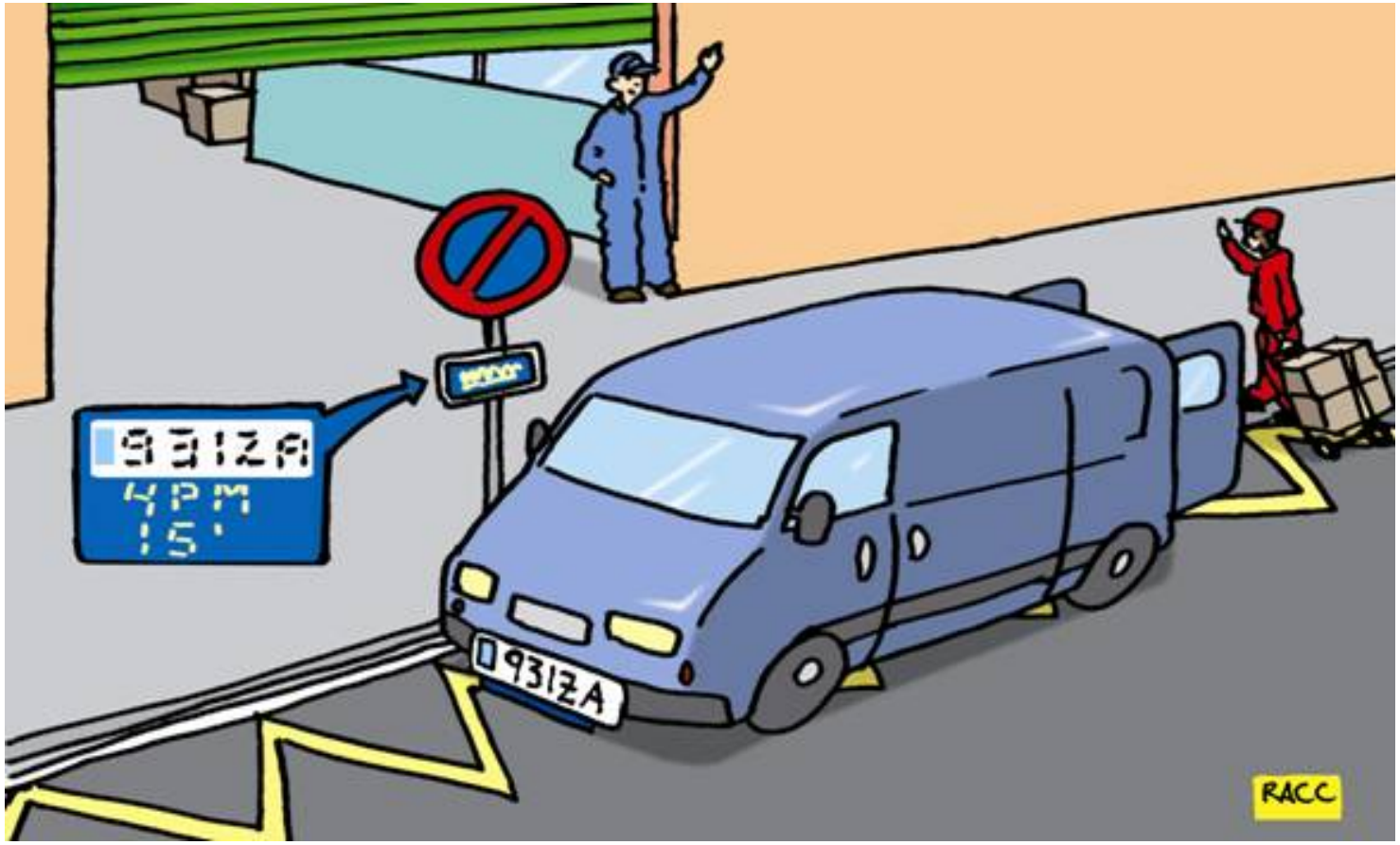
Rana Ilgaz
Directorate of Traffic Operations
Transport for London

CVIS

London Trial of CVIS aims to establish whether innovative roadside to vehicle communications can be used to facilitate freight operation.

Evaluation of deployment of CVIS in a mixed-use urban street with real fleet operators and real street operations

Co operative Freight and fleet (CF&F) Parking Zone



Approach

- Apr - July 09: Lab build and test
- Aug 09: Off-street test and before data collection
- On-street:
  - Sep 09: Vehicle install
  - 21 Sep 09: Start
  - Oct 09: vehicles operational
  - Nov - Dec 09: Collection and Collation of results.
  - 18 Dec 09: Trial Ends

Operation

- Freight operators make a reservation via the web interface.
- Reservation is downloaded to the vehicle via 3G.
- Vehicle approaches the bay. Estimated time of arrival (ETA) is displayed on touch screen.
- In the bay the vehicle communicates to the roadside unit (RSU) via Infra red (IR). The vehicle is also detected by image recognition system (IRID).
- RSU validates the booking with back office.

- Non CVIS vehicles entering the bay are detected by the image recognition system. If there is no IR communication then the RSU informs the Parking zone server that the vehicle is illegal.
- A sms text message is sent to an enforcement officer.

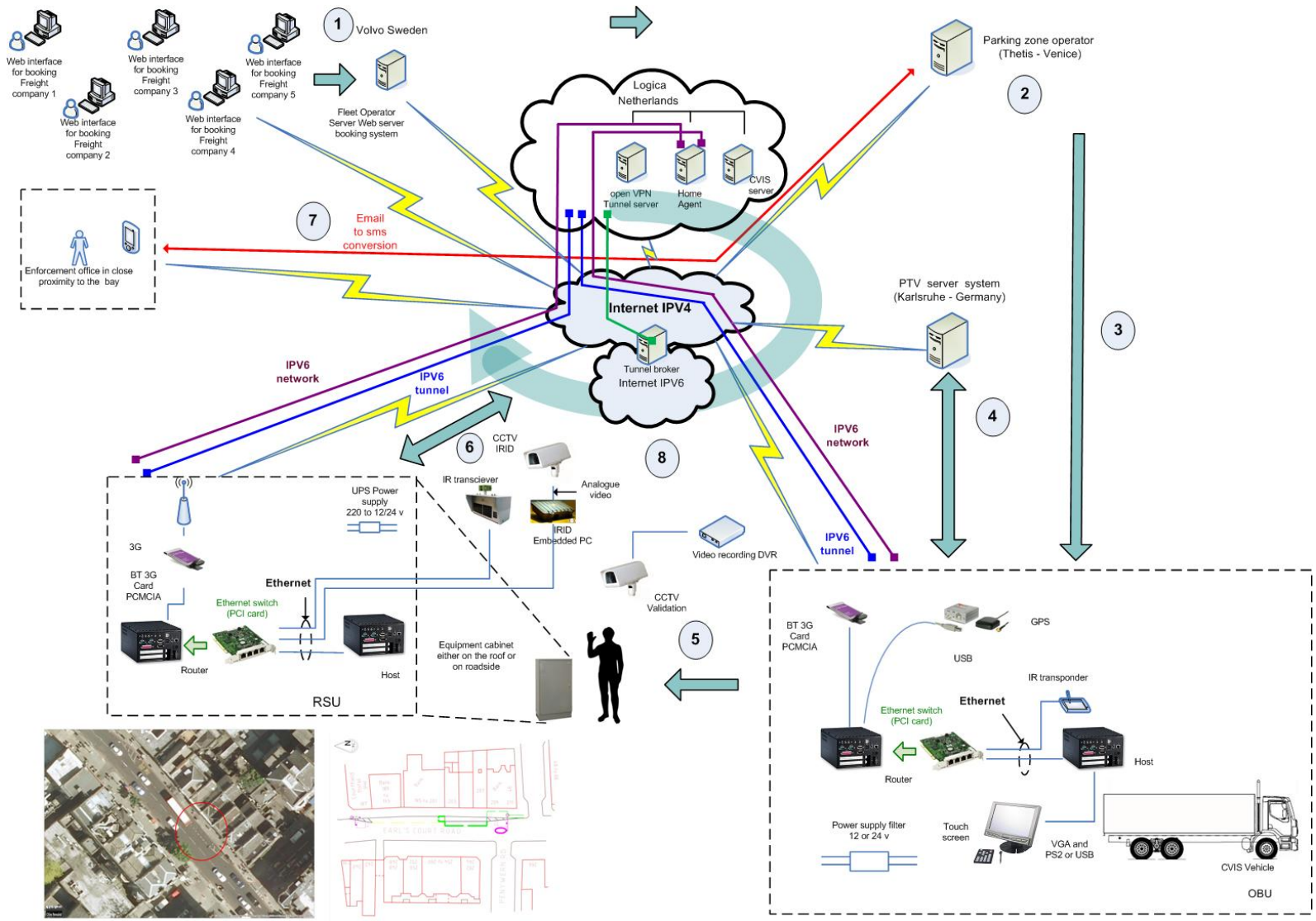
Key **CVIS** partners

- **Transport for London (TfL)** – London Test site Leader
- **Volvo Sweden** – Application development & Freight Operator booking tool
- **Thetis** – Parking Zone Operator Server
- **PTV** – ETA data
- **Logica** – IPV6 tunnel
- **Efkon** – IR components
- **Imperial College -** Validation

Key Aspects

- Roadside Unit - RSU
- Participants - Freight operators
- Vehicle or On Board Unit – OBU
- Back Office
- Enforcement
- Validation

Technical overview

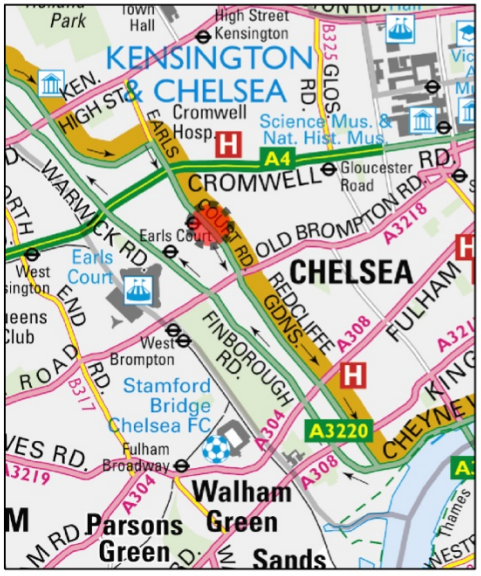


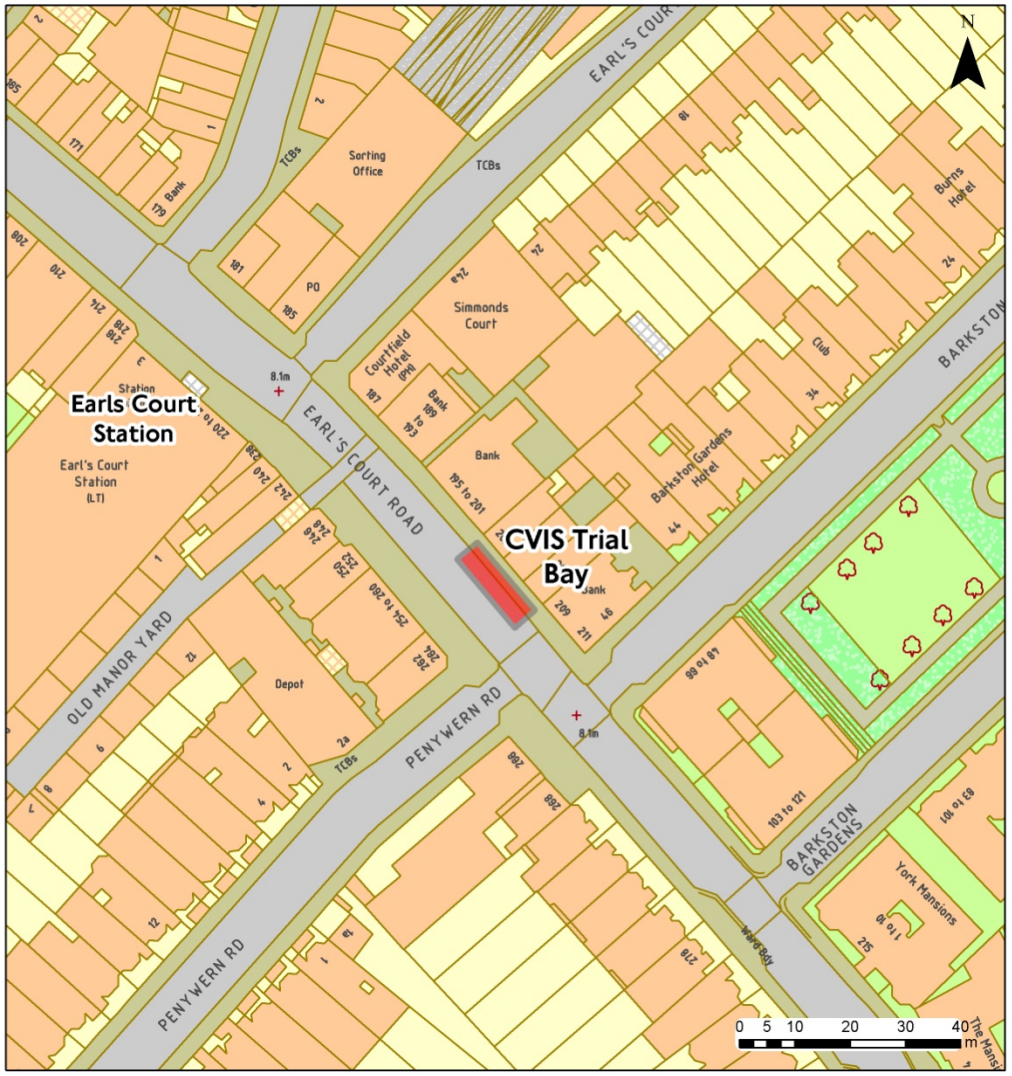
The Loading Bay
Earl's Court Road

London Streets

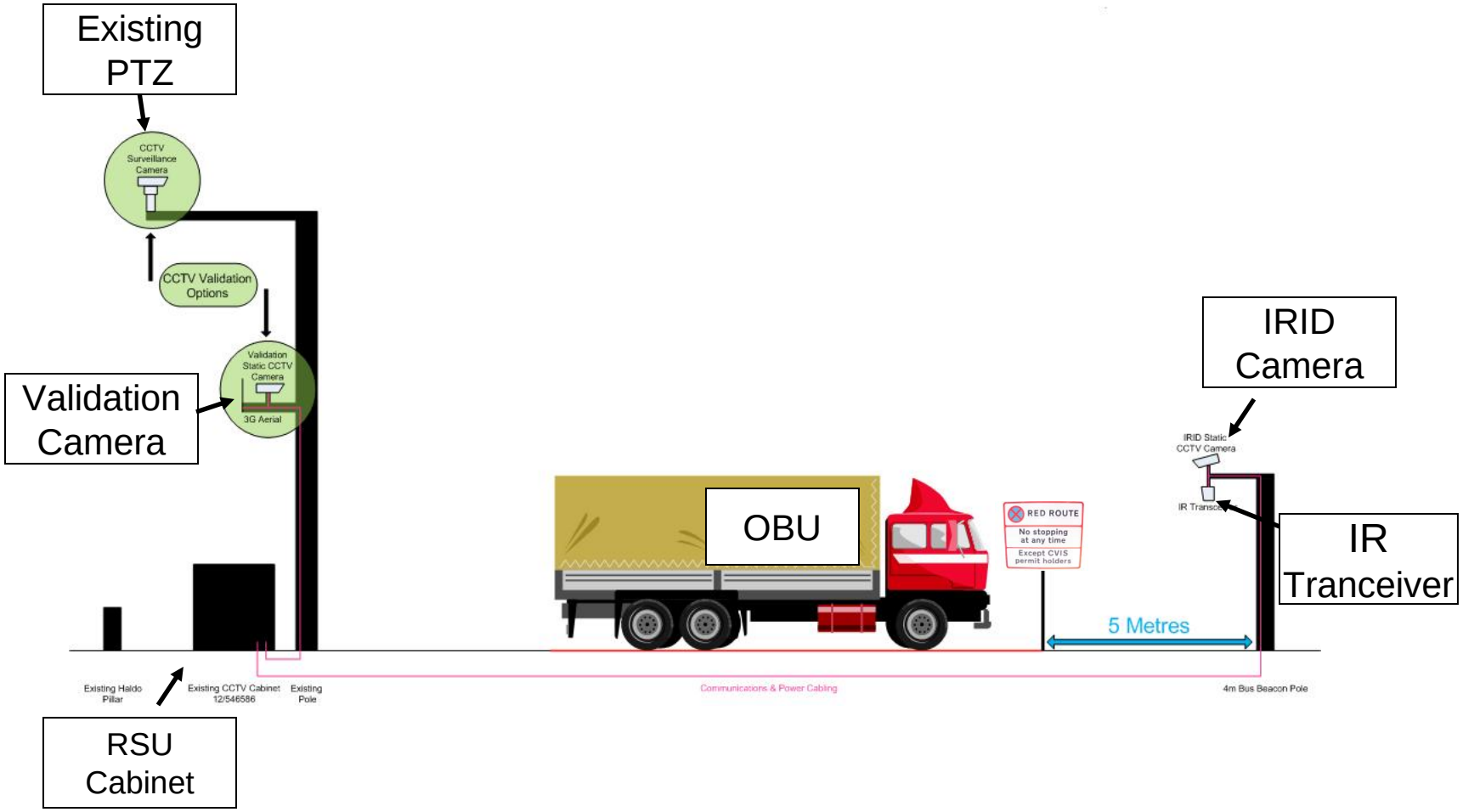
CVIS

CVIS Trial Bay Location





RSU Installation



The Loading Bay on Earl's Court Road

RSU Installation

RSU Installation

RSU - CVIS core technologies used

- **CALM** service advertisements
- **POMA** positioning and geofencing algorithms
- **CALM-IR**, for communication with vehicles.
- **CALM-3G** for communication with backoffice systems.

RSU Application

- The exchange of reservation information with the vehicles
- The communication with the back-office system
- The tracking of parking zone status with information coming from external detection services (e.g IRID) and geofence detection.
- Receives the position of the CVIS vehicle and compares it with the parking area geofence.
- The notification of illegal vehicle presence

Participants

8 Participants – 10 vehicles.

- Alliance Healthcare
- Coca Cola
- 3663
- Kamkee
- The Barn
- Hallgarten Druitt
- First Quench
- Waverley

Trial Participants

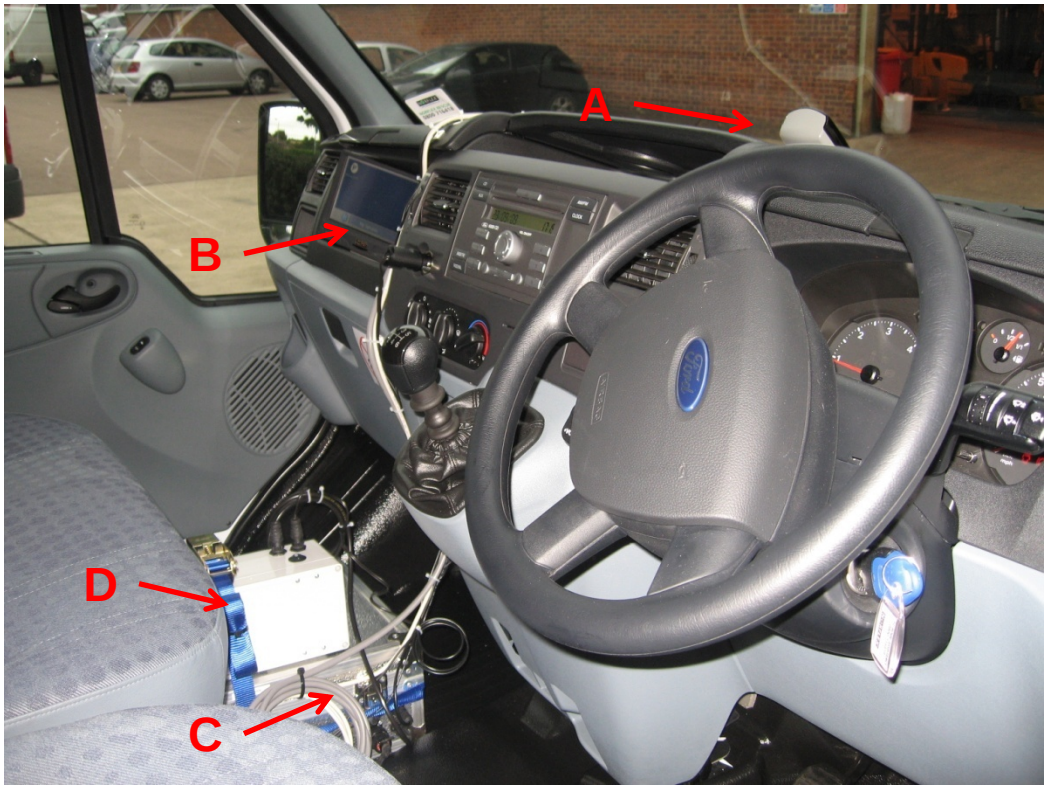
Loading trial

Transport for London (TfL) has begun a three-month trial of a new permit-based loading bay system in Earls Court Road, London with the co-operation of eight different vehicle operators. Vehicles involved in the trial, which aims to streamline freight deliveries, have been fitted with units to communicate with an infrared beacon at the loading bay for access.

Freight Transport Association Newsletter September 2009

OBU installation

Vehicle install



- A - In Car IR Unit
- B - Touch Screen
- C - OBU
- D - Back up battery

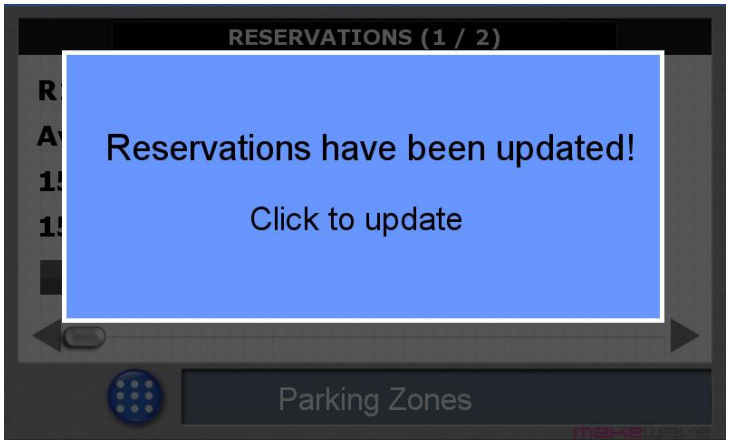
OBU - CVIS core technologies used

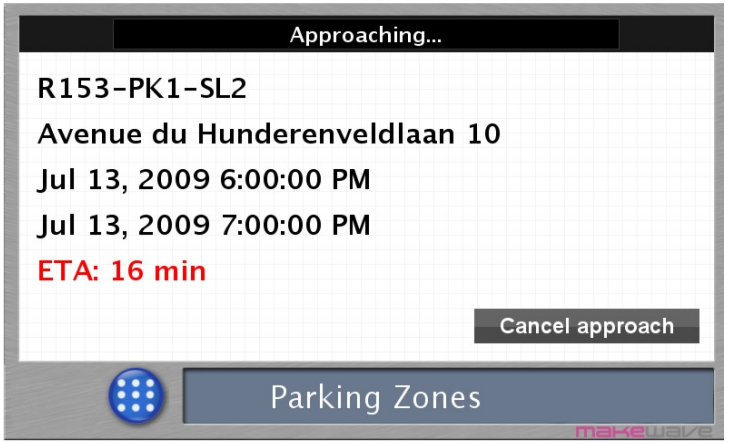
- **FOAM**, Application Manager, for user interface management.
- **CALM-IR**, for communication with road side unit.
- **CALM-3G**, for communication with back-office
- **POMA**, and RT Maps for receiving and processing GPS positions.
- **ETA** computation components

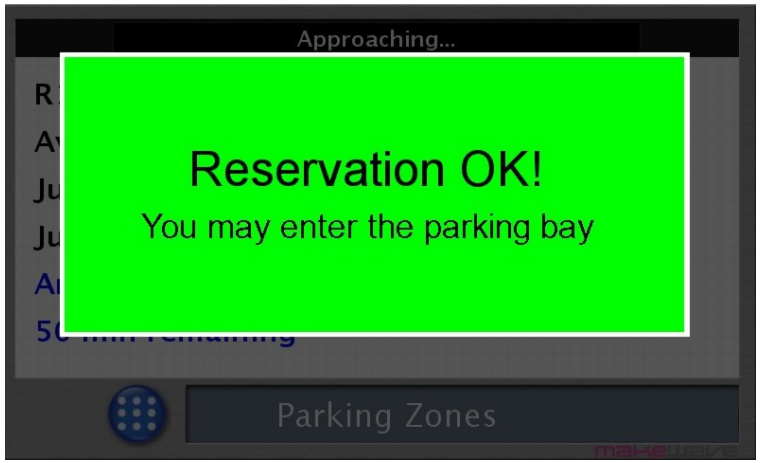
OBU Application

- Touch screen interface (HMI), reservation information, ETA display.
- Communication with the Parking Zones Operator back-office.
- The exchange of reservation information with the RSU
- Sends the position of the vehicle to the RSU over a FAST connection at regular intervals.
- Uses navigation components from the CVIS partner PTV to get the estimated time of arrival to the parking area.

Application - HMI

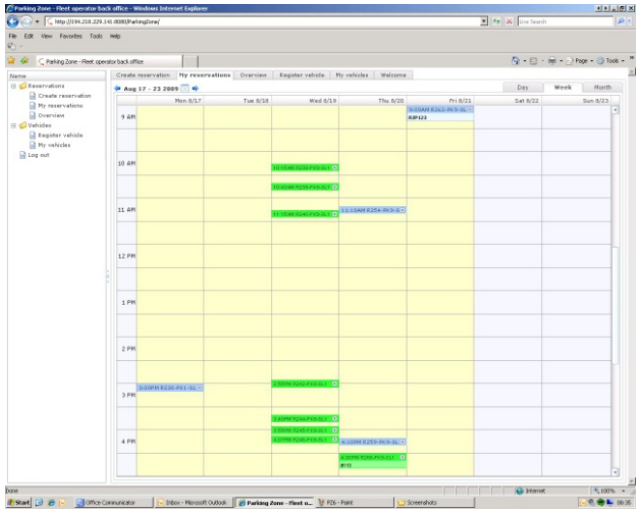




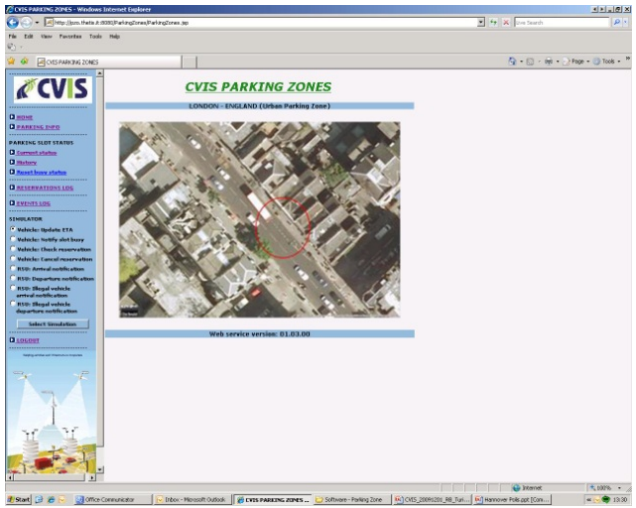


Back Office

- Fleet operator back office – Web booking tool. (Volvo)



- Parking zone Back office. (Thetis)



Enforcement

Validation

The validation process will proceed in two parts;

- Technical Validation
  - Operation, does it work?
- Impact Study
  - Does this application provide any useful benefits?
  - If so, to whom?
  - Does it fulfil the user and operator needs?

Technical Validation

1. Setup and deployment
   - **Does the system work?**
   - **What are the issues for future trials/deployment?**
2. Evaluate Thetis Reservation log
   - **How many successful reservation/validations?**
3. Evaluate on street activity record with Video
   - **How well does the system capture on street activity?**
4. Evaluate event sequences
   - **How well does the system respond to different use cases?**

Technical Validation

White Renault Van (Unichem)
Vehicle registration: CE09 EJF
Arrived at 10:07:34, (06th Nov)
Thetis logged at 10:09:00
Reserved between 10:15 & 10:29
(Reservation Code: R963-PK4-SL1)

Impact Study

- Monitor baseline situation without CVIS
  - Interview Freight operators at Training Day
  - Monitor on-street behaviour (before and after trial)
- Model baseline case (impact on CO2)
- Establish methods to identify impact on;
  - Freight operators (improved planning, reduce fuel, reduced fines…)
  - Network managers (reduce congestion)
  - General public (reduce congestion and pollutants)
- Monitor CVIS introduction
  - Interview study participants
  - Evaluate changes on-street

Key Lessons Learnt to date

- Hardware size and reliability.
- Power.
- Engineering Screen. (fault finding)
- Application developers to visit site.
- More testing before deployment.
- Scalability to a wider area – enforcement?

Thank you

Rana Ilgaz
rana.ilgaz@tfl.gov.uk
www.cvisproject.org