

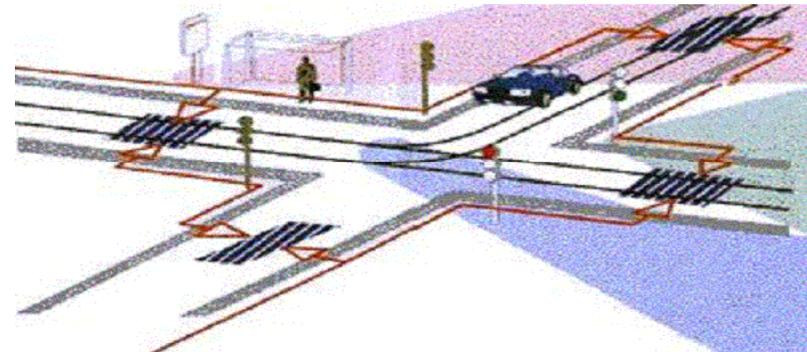
Design and development of a transport information platform. A global approach

World ITS Congress

- Complete information system for complex mass transit network
- Open Platform
- Multilayer model
- Different modules are dedicated to:
 - Local processing
 - Automation systems for traffic control, incident detection and flow control
 - Traffic flows optimization
 - Messages application, show information app
 - Self-learning algorithms aiming to optimize the traffic

- Easily can be adjusted and extended to one's needs or goals:
 - Topology changes
 - New traffic light control algorithms
 - New applications for driving-policies users.
 - Wireless applications (show information, alerts, control process...) for bus public service flow control in town
 - Pollution control are implemented

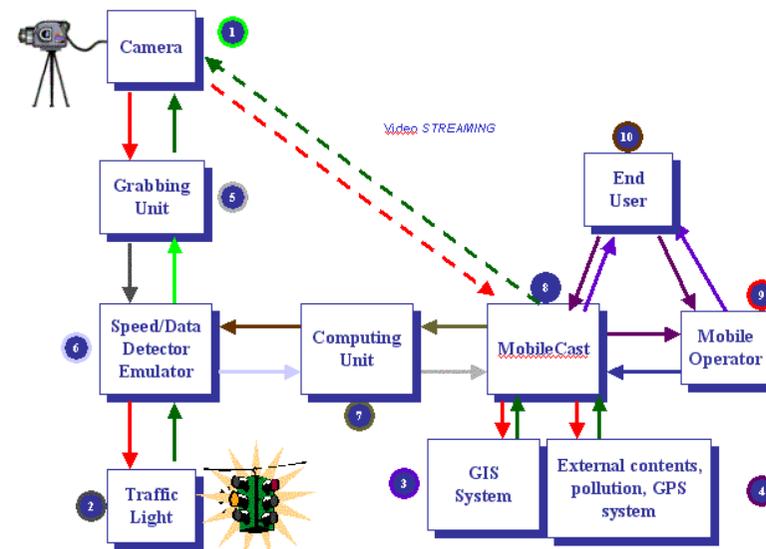
- 4 different electromagnetic inductive loops in each crossroad
- A CREATIVE PC-CAM 750



Software Architecture: Data Flow



- Camera
- Traffic light
- External contents provider
- Store and compute
 - for alerts logic, GIS system and a video steaming system.
- Alert logic, a video streaming server to show the cameras information
- GIS system to show the geographical information,
- Full added value service application on top of it. The data model is shown in figure 2.



- A Data Emulator is used. All the data received maintain the standard formats in the industry.
- The data sent by Speed Detector Emulator contains the speed detector number, timestamp and the car speed.
 - It's randomly generated with preliminary defined average parameters – car speed, car speed deviation, traffic density and traffic density deviation.
 - The Computing Unit receives this data and transforms them to an appropriate format for displaying through the User Interface and for storing in MobileCast (a Boungiorno wireless platform).
 - This unit also checks if the detected speed exceeds the maximum level configured by manager users. In that case it sends a signal to the Grabbing Unit to get a picture. The Grabbing Unit controls the Camera and stores the caught pictures. A picture of the crossroad could be caught directly from User Interface module.
- The video streaming system allow us to show real time frames to the users.

Send messages that are tailored to the customer needs and wishes. Built around personal profiles which include all type of personal alert services:

- pollution stock,
- police advice,
- on line events.
- The content provider could be the own system by itself (pick up the loop information) or external entities that provide us the information (pollution, other news,...).

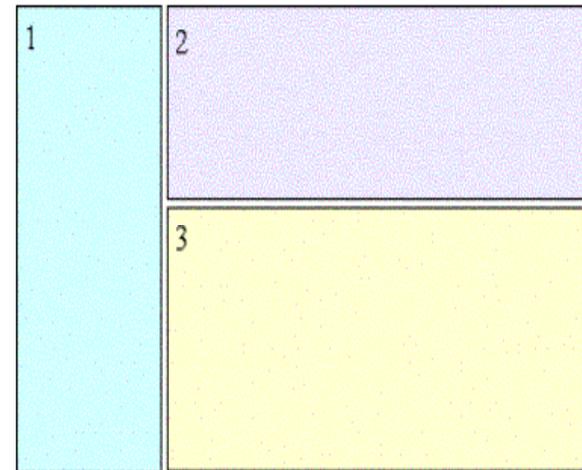
Approach to information delivery

- Stages:
 - Involving directly the final customer in the choice of content
 - leveraging on content providers, helping them to design the optimal approach to their current or potential customers and, finally,
 - Using a platform at the core, Multicast, that enables personalized messaging and e-commerce service integrating Mobile with Internet.

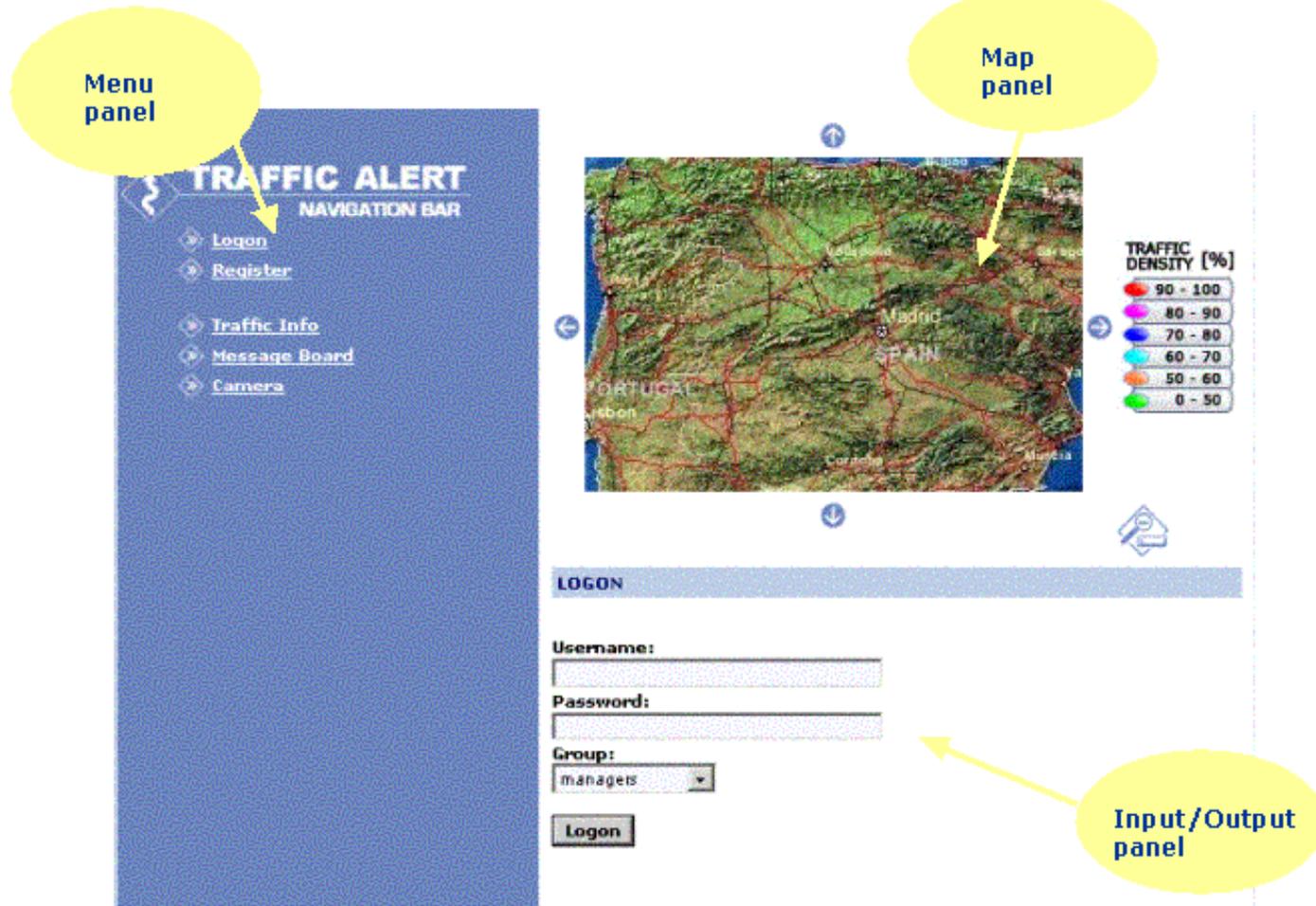
- The system keeps in mind two types of functionalities, depending on the user profile.
 - The regular users can define alerts (dense traffic, an accident, closed street etc), watch the messages that the system receives from the users (Push-Pull messages), get an image from the crossroad camera, navigate and see information from GIS system (flow conditions thought a color range).
 - The police (Police user) can define the maximum speed for the crossroad. In case of speed limit violation an image could be stored from the corresponding crossroad camera

User interface

- **Menu panel (1)**
- **Map panel (2)**
- **Input/Output panel (3)**



Interface



Policeman Image storage

The screenshot displays a web interface for 'TRAFFIC ALERT ADMINISTRATION'. On the left is a navigation menu with options: Home, Traffic Info, Message Board, Camera, Profile, Alerts, Special Alerts, and Special Images. The main area features a map of a city street grid with a color-coded legend for 'CARS / MIN' ranging from 0-20 (green) to over 50 (red). Below the map is a section titled 'STORED IMAGES' containing a list of image file names, such as 20057120CE271024820205785E80AEC3.jpg.

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