REAL TIME ROME

From an individual's perspective: what would be the best and most crowded place to drink an aperitivo in Rome? And what would be the fastest way to reach it by car, taxi or bus?

From a general planning perspective: how do cars and pedestrians merge in the city? Where and when are urban resources squandered in traffic jams? How do tourists inhabit the urban realm? What is the pulse of the city and how is it affected by special events, such as the World Cup victory celebrations?

The Real Time Rome project synthesizes data from communications and transportation networks into visualizations that help us decipher patterns of daily life in Rome. With aggregate information from mobile phones, made available through the innovative Lochness platform by Telecom Italia, the project interpolates the combined activity of people and presents it synchronously with the flux of public transportation and taxis. By overlaying mobility information on the geographic references of a city, Real Time Rome unveils the relationships between fixed and fluid urban elements.

These real-time maps expose the dynamics of the contemporary city as urban systems coalesce: traces of information and communication networks, movement patterns of people and transportation systems, and spatial and social usage of streets and neighborhoods. They also help us to understand how neighborhoods are used in the course of a day, how the distribution of buses and taxis correlates with densities of people, how different social groups, such as tourists and residents, inhabit the city and how urban dynamics are affected by special events. The resulting visualizations can influence the decision making of people in Rome, as well as provide quantitative data for examining the city.

Maps tend to represent the ages in which they are made, shaping our understanding of the environment and eventually its construction. These real-time visualizations of otherwise invisible networks are fundamental to our understanding of a digital culture where information and communication technologies are integral to our everyday lives.

Note: Real Time Rome respects individual privacy and only uses aggregate and anonymous data. In no way can links be made to individuals.

5 min — ROME — ROME — 1sec — CAMBRIDGE — 1sec — VENICE

INTERNET

CABLE

RADIO

GPRS

LOCHNESS SNIFFER

TELECOM ITALIA SERVER
Mobile phone usage is aggregated and captured by Telecom Italia network base stations with Lochness Sniffers, which are located throughout the city. The base stations collect data through two methods: 1) by measuring Erlang, which describes the amount of telecommunications traffic in a particular area, and 2) by recording the interpolated signal strength of mobile phones engaged in calls in a particular area of Rome (for this purpose, the city is divided into a grid of 250 meter-sized squares).

SENSEable CITY LAB SERVER AT MIT
The SENSEable City Lab team processes the aggregate mobile phone and GPS data from Telecom Italia, Atac, and Samarcanda, and runs custom designed software to analyze and visualize the data.

SAMARCANDA TAXI SERVER

ATAC BUS SERVER
Atac buses and Samarcanda taxis carry Global Positioning System (GPS) devices, which calculate each vehicle's location by communicating with satellites and reporting this data to the Atac and Samarcanda servers in real time.

SCREENS AND AUDIO SPOTLIGHTS AT THE BIENNALE
Six computers in this room continuously acquire the processed data from the SENSEable City Lab's server at MIT and run programs to visualize the different dynamic maps of the city in real-time. Urban sounds are simultaneously played from audio spotlights in front of three screens.

In Rome, location data is collected simultaneously from Telecom Italia mobile phone users, Atac public buses and Samarcanda taxis. Urban sounds from three different locations in the city are captured by microphones and transferred to the Biennale via a voice over Internet protocol.