



Case Study
Home Security Systems
Project

1. Project objective

The Home Security System is a Web software application which, if combined with sensors and actuators, allows for the monitoring and management of home appliances and installations (lights, air conditioning, etc.).

Furthermore, it is possible for users to be notified on their mobile phones or on the Internet about a possible security breach in their house, in case of burglary, as well as to see what is actually going on in the monitored area on their mobile phone screen.

The Home Security System was developed as part of a Business Plan implemented by Velti in the framework of the Development Law 3299/04. Its software applications are numerous, and new ones are added all the time, as mobile phone technology and broadband Internet access is becoming more accessible and faster.

The System enables ordinary citizens, enterprises and organizations to utilize the following functions:

- Monitoring the conditions in an area (house, business premises, etc.), as they are recorded by sensors installed in the area, at real time, over the Internet.
- Receiving prompt notification of a security breach in the said area, through SMS on any user's mobile phone.

The advantages of the Home Security System compared to conventional monitoring systems, which are based only on voice services and installed alarm systems, are:

- The use of open protocols and technologies (TCP-IP, WAP, JAVA, XML etc.) allows for expanding the system in the future at a lower cost and more easily.
- The use of standard communications and control systems (Internet, browser, mobile telephony, etc.) allows for a lower cost of the product than that of more customized software applications.
- There is direct, interactive control, thus resulting in the immediate activation of actuators and functions, without the need of the user's physical presence in the area.

2. Proposed Solution

The Home Security System utilizes the pioneering VELTI technology to provide Mobile Telephony and Internet Added Value Services. Thus, it ensures the

expansion of the know-how of our personnel and the use of centralized platform functions leading to lower development costs.

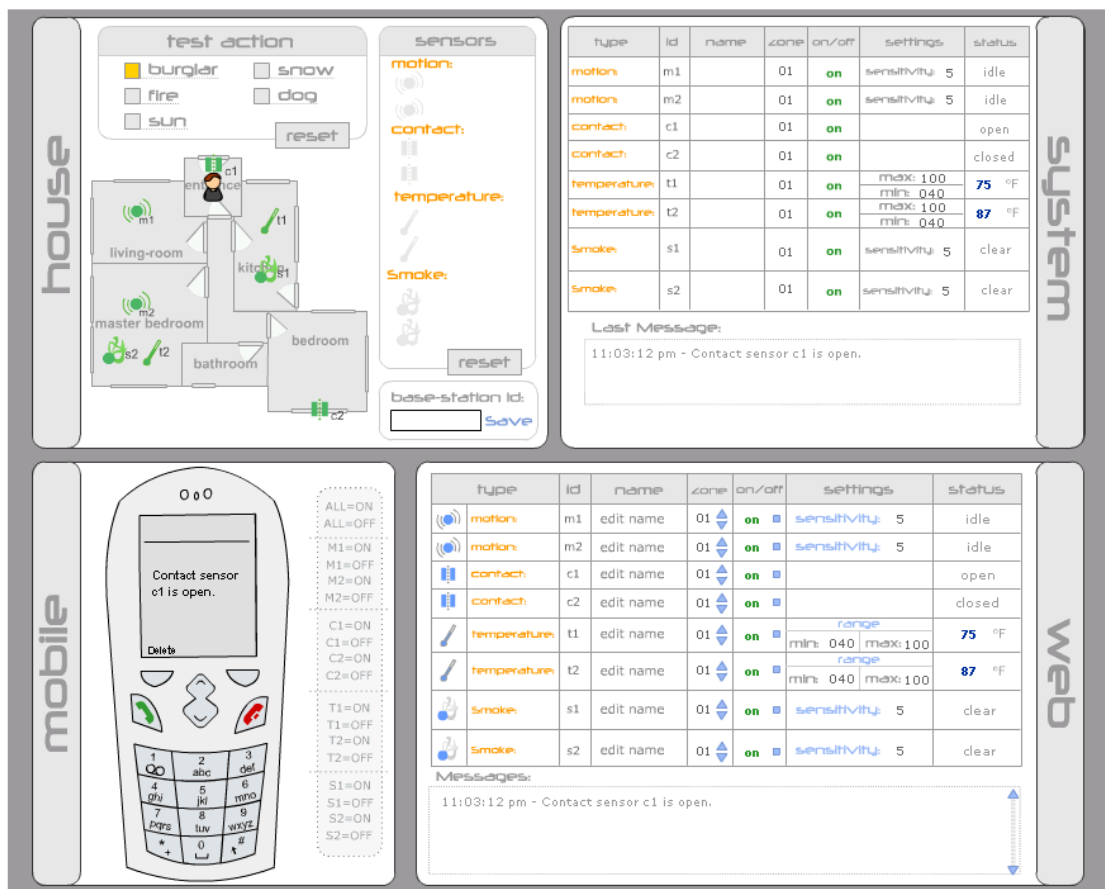


Figure: Indicative Home Security System screen

In addition to that, the System is a wholly new product that makes very good use of the latest technological features of third generation mobile phones (video transmission, content presentation, etc.), new types of sensors and actuators (Web cameras, IP movement sensors, etc.) along with the experience of VELTI.

Home | Alert Log

Profile: **Away** [add profile](#)

Type	ID	Name	Zone	On/Off	Status	Settings
Motion	M143876	Master Bedroom	2	● On	Motion	05
Motion	M143877	No Name Specified	1	● Off		05
Contact	C143876	Entrance	1	● On		
Contact	C143877	Garage Door	1	● On	Open	
Temperature	T143876	Kitchen	1	● On		50 110
Temperature	T143877	Office	1	● On		50 110
Smoke	T143876	Johnny's Room	2	● On		05
Smoke	T143877	No Name Specified	1	● Off		05

Alerts

09/15/04 12:55 p.m. - Motion detected on Master Bedroom sensor

09/15/04 12:55 p.m. - Contact broken on Garage Door sensor

Figure: Indicative Home Security System screen

Following is a brief list of the subsystems included in the Home Security System:

- The Rule Engine Subsystem, which does the translation of the data provided by the sensors, the triggering of relevant rules based on those data, and the transmission of the required actions to the Communication Subsystem.
- The Communication Subsystem, which processes sensor-to-user and user-to-sensor communication and the relevant actions.
- The Presentation Management Subsystem, which manages presentation through the Web, WAP, MMS, etc.
- The User Management Subsystem, which is responsible for user authorization and ensuring overall system security.
- The Database, which includes all the parameters of the system, users, communication channels, and used sensors and actuators.
- The Statistics and Reporting Subsystem, which traces and monitors all system actions and does the statistical processing of its overall function.

3. Project Technical Implementation

The Home Security System has been developed on the Linux operating system, through the use of open protocols and programming tools and the extensive use of the java and XML/XSL languages.

The security of the Home Security System is guaranteed by the use of standard security mechanisms for Internet interconnection software applications (SSL/TLS) at programming and interconnection levels, as well as the use of firewalls, DMZ and VPN tools at an installation level.