HI LIFE

CAN A MIRROR IMPROVE OUR QUALITY OF LIFE?
HI LIFE IS A WELLNESS SOLUTION THAT ALLOWS THE USER TO CONNECT EVERYDAY HOUSEHOLD OBJECTS, SUCH AS MIRRORS, TO A WIDE RANGE OF SERVICES IN A NETWORK AND TO DATA GENERATED BY SENSORS. USING DEVICES AND MIDDLEWARE BELONGING TO THE HI REPLY PLATFORM, HI LIFE TRANSFORMS THE MIRROR INTO AN INTERACTIVE SYSTEM LINKED TO A NETWORK THAT CAN MONITOR THE USER'S HEALTH AND PROVIDE USEFUL INFORMATION FOR DAY-TO-DAY LIFE AND HEALTH.

HI LIFE LOOKS LIKE A NORMAL MIRROR BUT IT RECOGNISES EACH INDIVIDUAL WHO STANDS BEFORE IT. ITS TOUCHSCREEN INTERFACE AND TRANSPARENT DISPLAY ENABLE IT TO INTERACT WITH DIFFERENT APPLICATIONS THAT DISPLAY, FOR EXAMPLE, PERSONALISED DATA ON THE USER'S HEALTH OR NEWS/INFORMATION THAT MAY BE OF INTEREST. HI LIFE INTERACTS WITH BOTH THE USER AND OTHER SMART OBJECTS IN THE NETWORK (SCALES, BIOMEDICAL SENSORS ETC.), ALL INTERCONNECTED VIA THE HI REPLY COMPONENTS.

ITEMS THAT HITHERTO HAVE BEEN NOTHING MORE THAN COMMON PASSIVE HOUSEHOLD OBJECTS, CAN NOW NOT ONLY FORM AN INTERFACE WITH THE NETWORK BUT, MORE IMPORTANTLY, INTEGRATE INTO THE CONTEXT IN WHICH THEY OPERATE, THEREBY BECOMING PART OF THE INTELLIGENT INFRASTRUCTURE THAT COMPRISES THE NEW DOMESTIC DIGITAL LAYER.

INTRODUCTION

The Internet of Things is the next stage in the evolution of the communication paradigm currently provided by the Internet. Up until now, the devices connected had to be homogeneous, but with the Internet of Things it is now possible to link up heterogeneous devices. Indeed, the Internet of the future is making it possible to connect machines and devices that differ significantly from each other, and to reprocess and translate heterogeneous data into services used to exchange information on the network via Web Services.

The Reply Research and Development centre dedicated to the Internet of Things **(IoT)** – and to the Internet of Services **(IoS)** - has created **HI Reply**, an innovative platform featuring services, devices and middleware, which bypasses the limits imposed on users by other solutions currently available on the market. The main characteristics of HI Reply are pervasivity, transparency, inter-operability, flexibility, sensitivity to the context in which it is applied, and a capacity to self-adapt and self-configure. HI Reply offers a basis on which to develop new specific applications for vertical scenarios, for example the **Wellness** and **Health & Care** sectors.

HI LIFE

SOLUTION/ ARCHITECTURE

HI Life transforms everyday objects into interactive systems capable of monitoring the user's state of health and of providing him or her with useful information for day-to-day life and on how to stay healthy. HI Life has a standard reflective surface with which the user interacts via a touchscreen interface. HI Life gathers the physical data provided by a network of heterogeneous environmental sensors (temperature sensors that transmit the data gathered using Zigbee) and biomedical sensors (Zigbee scales, pulse oximeter, infrared thermometer). Using the HI Reply platform technology the 'raw' data is transformed into a series of Web Services that are in turn orchestrated into applications. HI Life's Intelligent Orchestrator, created with the help of HI Reply's CA (Context Awareness) framework, enables automatic user profiling. It also allows decisions to be made and suggestions offered depending on the context generated by the data produced and processed by the user.

FUNCTIONALITY AND STRONG POINTS

The most important HI Life application is called **Wellness**. This allows the user to visualise the state of his or her health and receive suggestions on how to improve his or her weight.
The HI Life platform is compatible with numerous biomedical sensors and in particular:

▶ Weight (including weight history), body mass, % of body water.
▶ Heart rate.

▶ Body temperature.
▶ Pulse oximetry level (SpO2).

In addition to personal wellness services, HI Life also offers general applications for everyday use:

▶ Specific weather forecasts for the events in the user's diary.
▶ Ticker with the latest news (selected from the network based on user preferences)
▶ Message: application that allows the user to write a message on the mirror and send it to another user
▶ Personal Music Player for listening to one's favourite tracks
▶ Diary for noting the most important appointments on the user's calendar

HI Life supports various protocols: Zigbee and Zigbee Pro, Bluetooth, Wifi, serial, USB. All the Wellness data is displayed in WS (Web Services) format, so that remote access is possible via a Smartphone or PC browser, as well as more complex applications.

HI Life demonstrates the potential of abstraction and orchestration in complex services provided using the heterogeneous sensors of the HI Reply platform that enable the development of context-sensitive applications. The platform is compatible with the Digital Living Network Alliance (DLNA) standard.

FURTHER APPLICATION SCENARIOS

The technology at the centre of the HI Life solution and the other modules in the HI Reply platform enable numerous vertical applications with a potentially significant impact on the Smart City ecosystem. One of the most noteworthy possible application scenarios is **Remote Assistance** for the elderly and the chronically sick. This service would enable users to receive assistance directly in their own homes and would slash the cost of such services. Another possible application is in the field of **Rehabilitation Physiotherapy**, in that the on-board video camera and sensor system, used in connection with a specific application are an ideal tool for confirming whether the user is undertaking his or her treatment regime correctly.

REPLY

www.reply.eu

HI Reply is an innovative platform created by Reply, which incorporates services, devices and middleware for the Internet of Things. HI Reply creates an ecosystem of people, objects and services that communicate via the network. HI Reply uses sectional, configurable modules to provide all the elements necessary for the creation of vertical solutions that are secure, scalable and flexible, and based on the interaction and cooperation of connected objects.