MAGIC MIRROR, THE FIRST VIRTUAL MIRROR FOR WATCHING YOUR CUSTOMIZED SHOES

ITIA-CNR is working on the Magic Mirror concept for some years. The idea aroused during the European Project EUROShoe which the objective was having a fully customized shoe. Beside the machinery and the technology supporting the product cycle, we proved the importance of having a product for making the customer choosing a pair of shoe, a specific model and style. The idea has been developed inside the CE founded research project CEC-made-shoe (IST-NMP Project N° 507378) and it's to use the Augmented Reality (AR) to show a pair of shoe that hasn't existed yet because not yet produced, directly to the customer's feet.

Analysing the customer’s approach to the selection/buying moment the user should change his path for buying footwear.

**Scheme 1: customer’s approach to the shoe shopping moment**

The shoe can be customized on three levels:

1. Aesthetical, when the shoe can change only on aesthetical level changing external colours, or materials and lining
2. Best fit, when the shoe is customized within a finished set of measures and sizes which are more than the traditional, but even a determined number
3. Custom fit, when the shoe is completely designed and produced following the customer foot.

In any of these cases, when the user goes to the shop for buying his customized shoes, the shoes are not there to be wore. The Magic Mirror is a tool that uses the Augmented Reality (mixed of virtual and real) for visualizing the shoes that the client has already selected using the electronic catalogue with shop assistant help.

The system is composed by a camera which film the client and transmit the image to a LCD screen positioned 40 cm high from the floor. The screen is the mirror which gives back to the client his image. The client is able to move himself and his feet. The test area in front of the mirror is a normal trying on space. The Chromakey uses a special colour for floor background and shoes devices, the system is calibrated on that precise colour and substitute it with a background and the selected pair of shoe.

Image 1, 2: the chromakey technology
The user can walk a little and watching his image frontal or lateral, lift the foot and see the shoe in any position. The position and the user’s movements are detecting by an object called Polaris. The Polaris is a Motion capture system (MCS): infrared technology with good precision detection of the position of some sensors positioned on both feet.

![Image 3: the Motion Capture](image3.jpg) ![Image 4: the Electronic Catalogue](image4.jpg)

As already mentioned, the customer can select the model by an electronic catalogue then he can make co-design of his shoes by himself, being the catalogue interface really user friendly, or with shop assistant’s help in terms of technology usage or fashion counsellor.

For further information on the technology and its uses contact Dr. Marco Sacco (+39 02 23699601)

![Image 5: the Magic Mirror. The shop corner](image5.jpg)