

# LIS

## Laboratoire d'ingénierie des systèmes de Vers

### PROJET7 - MASTER2 CSER 2015

#### Interaction with an immersive screen

---

The goal is to develop a way to interact with an immersive screen such as in Caves. For this project we are putting ourselves in the situation of civil engineers who are building a model. There are currently no real means to show the complete full scale model on the screen so we need a way to select and show meaningful information for this multimodal problem. For example, people working on the plumbing will not need to see all of the electrical system but, instead, must visualize where the pipes must run. This is why we need a modular way of interacting with the screen.

Cave's immersive screens are made to be used by someone who is standing which means that the usual mouse and keyboard is unsuited for our purposes. The possibility of using visual sensors such as the Kinect® has been rejected for its lack of robustness, the same is true for gamepads which are not an intuitive solution for most. The solution picked was to use a tablet - a versatile solution, especially for the capacity of its input and output. We can use the screen to display information about the model (and) show the

interactions available to the user and its speaker for audio feedback. It can also integrate inertial sensors that can be used to navigate through a model. Most of all, the touchscreen capabilities make it easy to use for one and all.



The second choice was to use the software Unity© which is a gaming development platform which supports almost every OS on the market. You can easily install the same project on a laptop or a mobile OS (android, WP, iOS) which we used to implement the communication between the big screen and the tablet. For the communication, we use WiFi connectivity to enjoy a long range of action and the UDP protocol to insure real time interaction.

The idea we had for the interaction is to have a map of the building model on the tablet, we also display information such as the place of the camera at a given time and the possible movement available, in either precalculated or in real time. It is also possible to explore the model directly from the tablet in 3d and realtime.

Aymeric du Chéné : [Aymeric.du.chene@outlook.com](mailto:Aymeric.du.chene@outlook.com)