

Communication between a C++ application and U1 simulator

To communicate with a U1 simulator, a serial link is required between the PC and the U1 electrical cabinet, as well as the motion information we want to transfer.

In order to adapt to various applications, the intensity of the movements is managed by a gain file (.mvt) that enables the setting of the movement amplitude according to the application (**TableConfig.mvt**).

The dll has 3 functions :

void StartSetConfig(char* PortCOMNumber)

enables the configuration of the right serial communication port and the sending of the gain file **TableConfig.mvt**. The call to this function only needs to be done once.

void Update(float AccLinX, float AccLinY, float AccLinZ, float VitAngIPan, float AngIRoll, float AngITilt, float Speed)

allows the transfer to the U1 simulator of the movements of the 3D object we want to feel. To do this, you need to give the following seven datas to the function as parameters:

AccLinX – Acceleration of the forward/backward translation (m/s²)

AccLinY – Acceleration of the left/right translation (m/s²)

AccLinZ – Acceleration of the up/down translation (m/s²)

VitAngIPan – Yaw rotation speed (°/s)

AngIRoll – Roll angle (rad)

AngITilt – Pitch angle (rad)

Speed - (m/s)

The frequency of Call to this function has to be between 20 Hz and 100 Hz.

void CloseAll(void)

closes the serial communication port properly.

The call to this function only needs to be done once, when closing the application.

To enable U1 simulator movement, the file **TableConfig.mvt** is placed under the application's root.

