Project dates: March – June 2020	

Title: Escape the Classroom	
Project activity areas: Mechanical Engineering, Industrial Engineering, Computer Science and Communication,	**Keywords:** Escape Game, Design, 3D printing, communication, performance evaluation
Tutor's name and coordinates Client – End-user: Laurent Geneste ENIT Technical Supervisor + contact: Cédrick Béler	**Project origin:** ENIT

Project technical background:

This project is part of a larger project which aims at developing a game to support software programming training. This game is based on the principles of an Escape Game (scripting and puzzle solving). It is now operational and has been tested successfully with approximately 200 students.

The principle is simple: each student plays a character who follows a game scenario. There are currently 6 different characters (see Figure 1 for examples of characters) and each one follows a different paths (along a given scenario). During the scenario (see examples in Figure 2), students must solve puzzles (by writing software programs) to progress in the adventure. The game environment is accessible on a web server, via a simple browser, which facilitates its deployment.

Figure 1: examples of characters

Currently, two scenarios are fully playable but several improvements are expected and constitute the subject (as a whole or in part, depending on the student's skills and fields of interests) of the proposed project.

Action 1.
Design and realization in 3D printing of original chests and decorative and atmospheric objects. When the students reach the end of the game, they must open a chest containing a reward. The objective of this action is to design one or more models of chests and to build them through 3D printing. This design can be highly creative while respecting the context of the scenarios. In the same spirit, other objects can be designed and (3D) printed to improve the atmosphere of the game.

Action 2.
Realization of communication supports. This action involves defining the scope of communication around the project and proposing appropriate communication supports. It will also contribute to actions already planned, including a participation in a conference to present the project. This action can also include the translation of the game in

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English in order to facilitate its dissemination.

Action 3.

Design of new sequences of the scenario and of a tutorial. This action aims at developing new portions of scenarios (story and puzzles) and to simultaneously write a tutorial to help newbies (teachers for instance) to develop a new scenario or to improve an existing scenario by themselves.
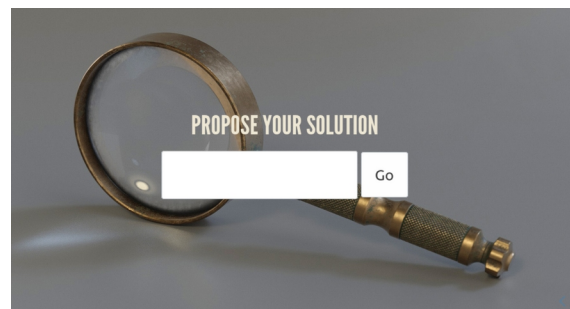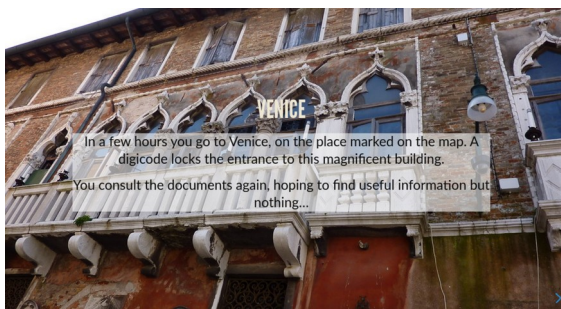

Figure 2: parts of a scenario

Action 4.

Evaluation of the game use. The objective here is to define a framework for the evaluation (by the students) of the use of the game. This evaluation will be carried out using a form listing questions, to be defined during the project. The processing of the answers collected will also have to be implemented; the process should be as automated as possible.

Studied topics:

- Mechanical Engineering
  - Specification and creative design of artifacts for 3D printing
  - 3D printing, testing of proposed solutions and improvements
- Industrial Engineering
  - Performance evaluation, indicators and dashboards
- Computer Science and Communication
  - Integration of new scenario sections and tutorial writing
  - Communication strategy and production of appropriate materials