The solution designed to drive the experiment had two components to be used by students and teachers respectively. The first component was a multitouch tabletop application that allowed students to design a logical model of entity-relationship diagrams. The second component was a web application that allowed teachers to monitor student work.

The following hardware devices used for the construction of the application of students: Optitrack Motion Traking V.120 Duo System, an economic projector, PC, Samsung Galaxy Tab 3, a set of 3 infrared markers that were used to construct each pen that students used. Software used were: TUIO protocol, multitouch framework MT4J, Paleo-Sketch Recognizer, and Optitrack Camera SDK.   
Each student used a pen with 3 infrared markers to draw their diagrams on the tabletop, whose position was provided by the Camera SDK. This position was used to calculate the position of the pen tip using algebra. After processing this information, a touch event was generated through the TUIO protocol, and then sent to the MT4J application. The application built under the framework MT4J was responsible for two tasks: recognition of strokes and draw figures on the tabletop application. Each stroke made by students was processed by the library Paleo Sketch Recognizer, which identified two possible ways: rectangles or lines. When a rectangle were recognized an entity was drawn, similarly, when a line were identified a relationship was drawn. Students entered entities or relationships text using tablets. Each figure or text entered by students were presented with a specific color associated for each student. Also each action information were stored in a JSON file every 2 minutes.  
The tabletop application also had a semaphore located in a corner of the screen. This was intended to show how active each student was in session. The semaphore were green when the student was actively involved in the work. Change color to yellow or red when the student did not show activity after 5 minutes elapsed.

Teachers used a web application that requested information to the student’s app. Teacher’s app had 2 functions: monitoring and evaluating. In monitoring functionality, teachers could see a screenshot of the diagram drawn by students. Each entity, relationship or entered text were represented with a unique color for each student. Furthermore, percentage information was presented. For example: percentage of created entities, or relationships created. In evaluating functionality, teachers used the JSON file format to play an animation of the entire development process diagrams produced by students. In this application the same semaphore used with students was used.