



DigiEduHack Solution

Aalto University - Engaging Virtual Learning

Challenge: Aalto University - Engaging Virtual Learning Challenge 2021

Simula SMVRT



VR & simulators: best practices for training in dangerous fields

Is there a way to provide hands-on, experiential training for mining site truck drivers without exposing them to the dangers associated with their work on mining sites? Join us to test the idea. *Simula SMVRT* as a tool for learning and training in fields with high injury potential.

Team: Simula SMVRT

Members roles and background

C.F. Mining Engineer. Knowledge regarding the training of truck operators. Previous experience as a tutor, integrating diverse educational methodologies.

J.O. Education Technology Business Experience, VR Developer,

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Solution Details

Solution description

Our solution combines the use of virtual reality and physical simulators to train and test mine truck drivers with data analytics APIs to extract essential psychometry data points such as focus, team play, decision making, problem solving, endurance, that are important for the job. With this tools, companies might also recreate adverse conditions for intensive training.

With this data, companies could provide different training depending on the characteristics of their drivers and make better decisions, for example, in adverse conditions.

This solution means less risk for drivers and co-workers, avoiding accidents during the training stage. It also means better revenues for the companies, as they would not have to use the trucks for training, but could continue to use them exclusively for production activities.

In this case we use mining as example but we could focus on another industry and machinery, just considering the input from their data.

Solution context

As we analyze, there are industries that have high potential injury, just as something intrinsic. In addition, within the training activities for new workers in the operation, there will always be a possibility of making mistakes that could cost the life of him/her or their colleagues. Faced with this scenario we ask ourselves, How do we provide hands-on, experiential training to first time mining sites truck drivers without exposing them to the dangers associated to their work on sites?, a question that we will be able to solve with our solution.

Solution target group

The target group for this solution is mining companies that have truck drivers in their operations. Our users will be the truck drivers.

This solution will affect them in a positive way: For the companies, they could have fewer accidents, associated with training, in their operations as well as training their employees for adverse conditions. While they would not need trucks for the first stage of training, which means they could receive better income by using those only for production.

For our users, the truck drivers, they will be ready to work because they will have intensive training that will help them develop other personal skills such as team play, decision making, problem solving, stamina, which are important for the job. It should also be noted that with this technology they will avoid the risk of injury while training, which means safety for them and peace of mind for their families.

Solution impact

The impact will be just in a positive way: For the companies, they could have fewer accidents, associated with training, in their operations as well as training their employees for adverse conditions. They could check this results with KPI's measurement. While they would not need trucks for the first stage of training, which means they could receive better revenue by using those only for production.

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their families. For this last topic, we could use historic data about accidents for training reasons and compare with the numbers while using this technology.

Solution tweet text

Be SMART, Simula SMVRT - VR & Simulator as Tools for Safety Training

Solution innovativeness

Our solution combines the use of virtual reality and physical simulators to train and test mining truck drivers with data analytics APIs to extract essential psychometric data points such as concentration, team play, decision making, problem solving, stamina, which are important for the job.

We can find simulators and virtual reality on the market, but the innovation for us is this psychometrics data that helps to focus specific training according to the needs of each operator. Also with the scenarios that companies can create to prepare them for this intensive training (adverse conditions like poor light, ice on the roads, heavy trucks-over 300 tons).

Solution transferability

As we explained, we could transfer this solution to other industries where there is a potential injury such as Laboratories, Wood Factory, Chemical Process, Machinery Operators, Pilots in general and why not students in the medical area. People need to be trained before they start working, but there is always the possibility of human error. With our solution, they will be able to recreate these scenarios and practice on them before they start working. All we will need for this is the input data for the measurement and to develop the scenarios with the appropriate characteristics.

Solution sustainability

We intend to receive input from the industry in terms of data and associated scenarios to be recreated in the simulators and VR. Also adapt according to the needs of this or other interested industries. The development of the technologies will require a developer who will be able to replicate the characteristics of the industry. The solution can be delivered to companies in the industry, as well as to education and training centers.

Solution team work

We are a very small group that managed to develop a great idea in less than two days. One of the strengths delivered by a member was Knowledge regarding the training of truck operators. Previous experience as a tutor, integrating diverse educational methodologies and by another member Education Technology Business Experience, VR Developer. Between the two of us we were able to develop a design thinking scheme and excellent teamwork that we could continue to develop.