COMPANY AND CHALLENGE

Technical operations in industrial factories involve several different types of machinery and hundreds, if not thousands, of steps that have to be meticulously followed.

Training process to perform these operations is an extensively complex task, mainly based on heavy, long, tedious, and fuzzy documentation, that generates in employees stress, low self-confidence and other issues that can lead to mistakes. Moreover, the trainee's performance is not being assessed by means of test or evaluation processes.
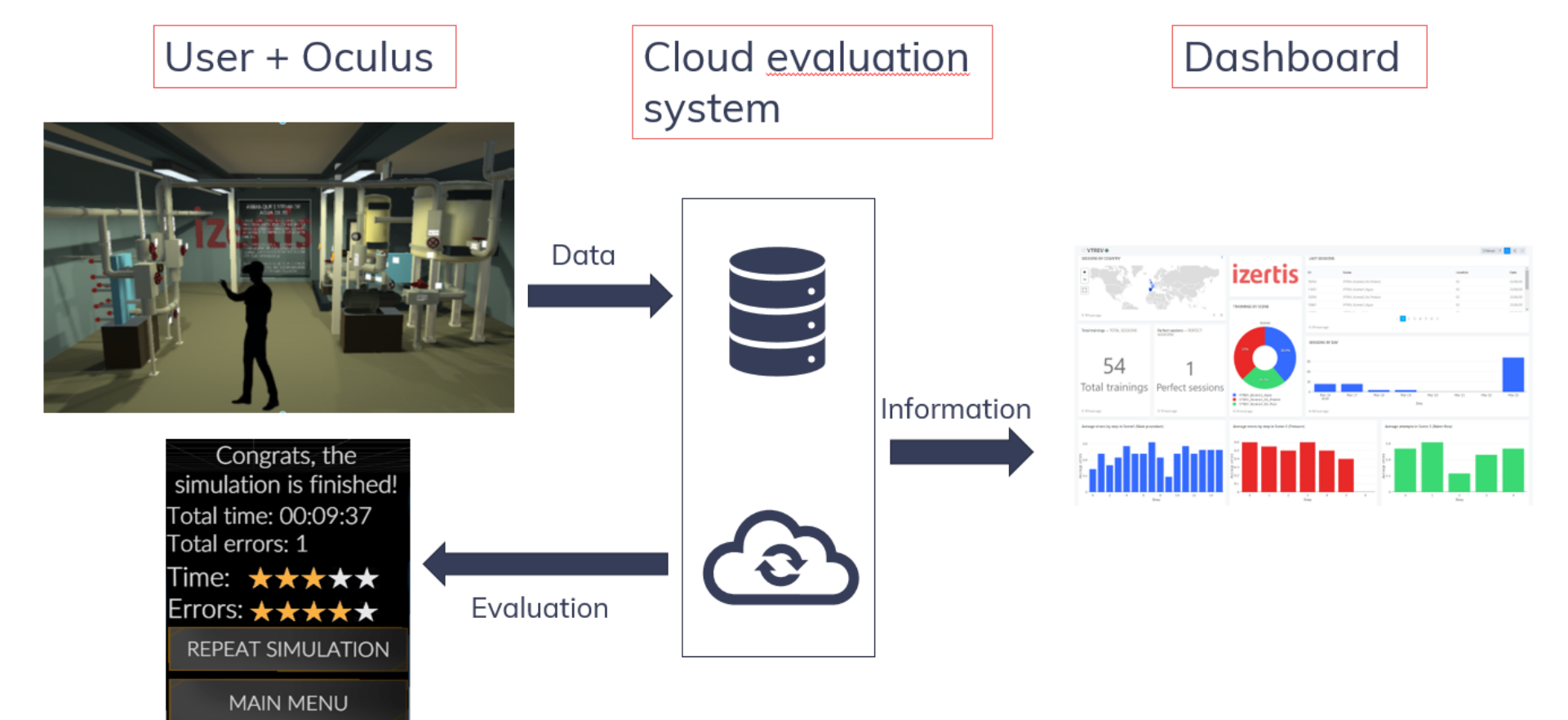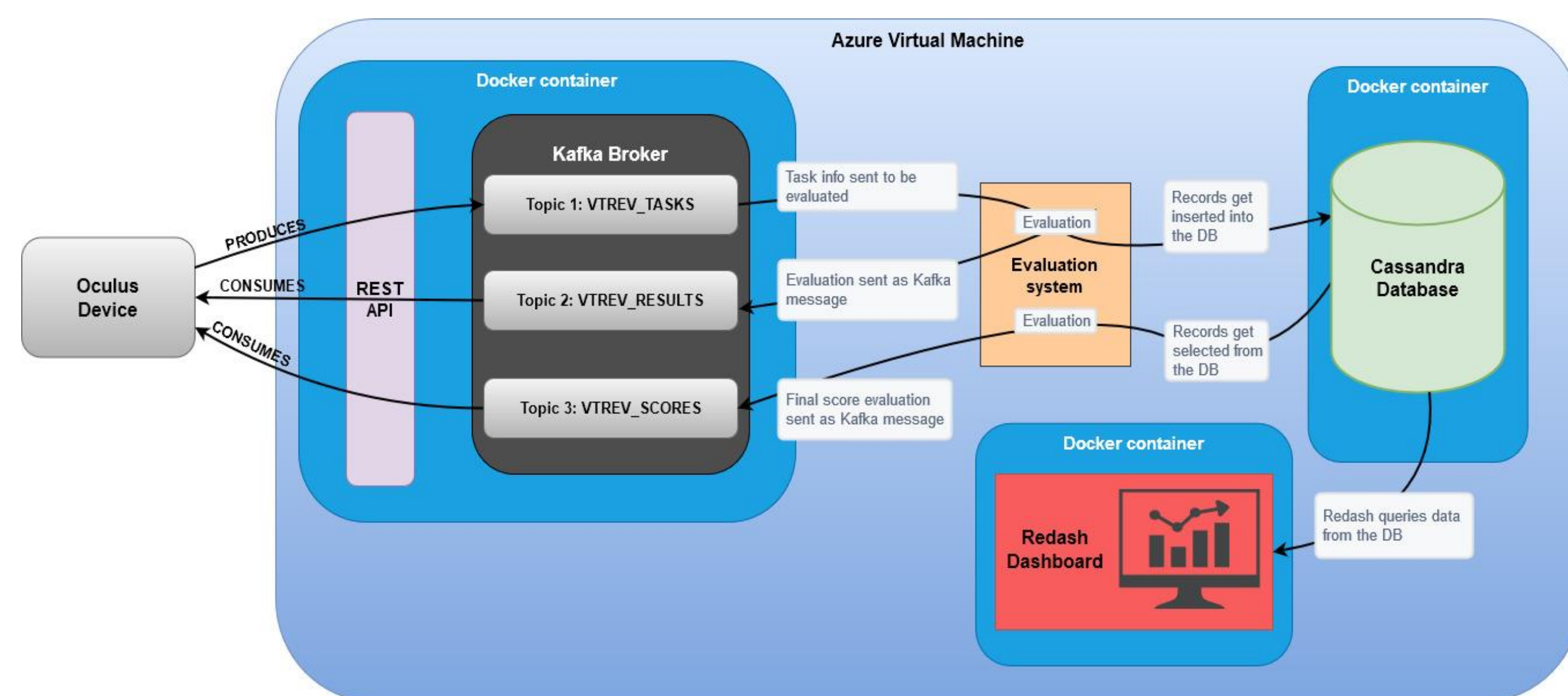
IZERTIS, a private company specialized in digital transformation, has addressed this challenge by developing a solution led by virtual reality along with data monitoring: virtual scenarios for training employees in a safe and comfortable environment, with interactive guided procedures that the trainees can repeat as much as they desire. These procedures can be extended, modified, or updated anytime it is required, creating a valuable tool for companies that embrace a new employee training paradigm.

SOLUTION: ARCHITECTURE AND COMPONENTS

V-TREV comprises the following components:
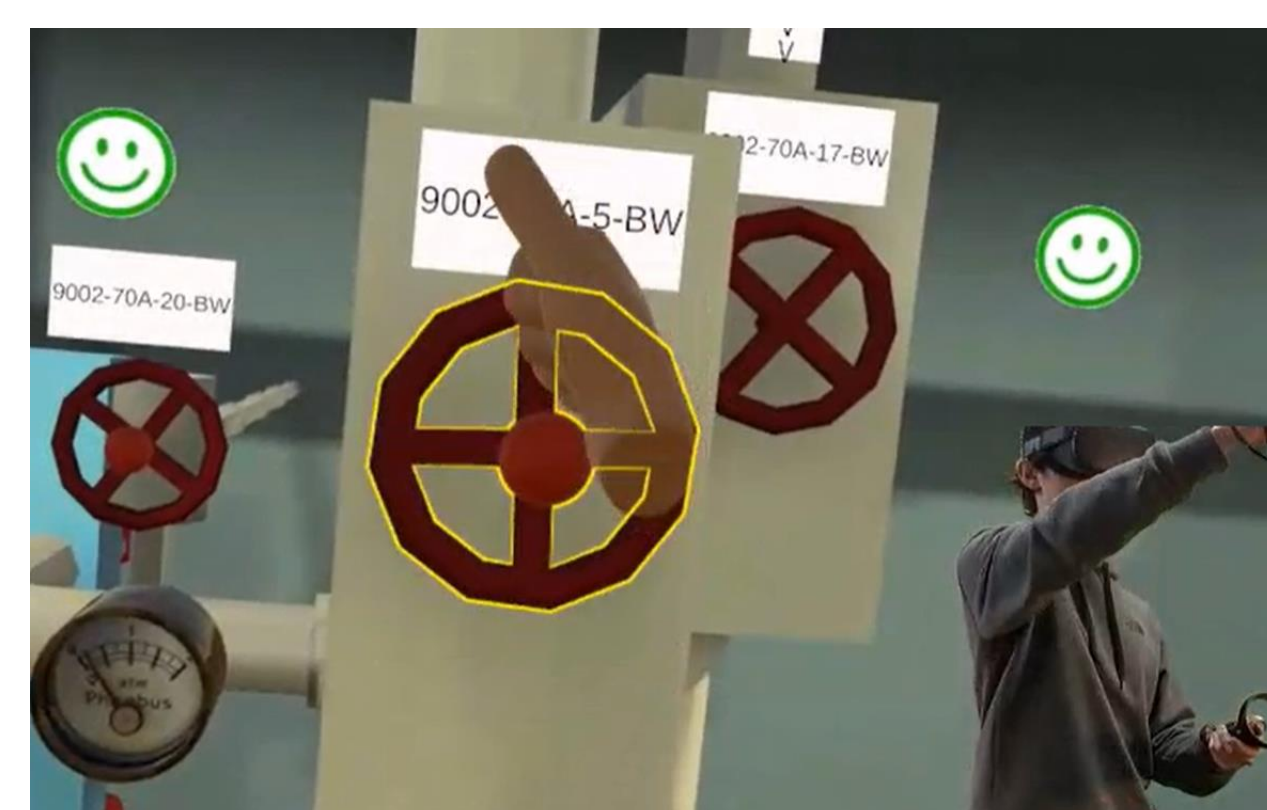- Oculus Quest Device
- Azure Virtual Machine, containing:
  - Docker container system
    - Rest API
    - Kafka Broker
    - Cassandra DB
    - Redash Dashboard
  - Evaluation system
    - Python-based backend

V-TREV makes use of innovative virtual reality technologies such as the Oculus Quest device and the last VR toolkits and frameworks as well as open-source software from the MIDIH reference architecture such as Apache Kafka.

BENEFITS AND LESSONS LEARNT

V-TREV provides a new employee training paradigm: workers are trained in an interactive and progressive way which can be assessed and analyzed.

V-TREV functionalities include:
- Virtual training, simulating a real scenario.
- Ability of simulating falt cases, even very complex and rarely performed tasks.
- Real time-data streaming, strongly supported by MIDIH Reference Architecture components.

Factors contributing to the success of the experiment are the MIDIH Reference Architecture, the willingness of the industrial company that has collaborated as end-user, the support received by our mentor, and the quality of the project team.

OUTLOOK

V-TREV was successfully tested in an industrial company, whose employees have provided very positive feedback. It is estimated that V-TREV could lead to reduce training hours in 30-40% and production costs related to training efficiency in 60-70%.

Additionally, 54 industry players were individually reached to inform them about V-TREV's results and benefits. Despite of the negative impact of COVID-19 pandemic in the economic activity, 5 of them from very different sectors have shown their commercial interest.

Because of all the above, IZERTIS truly believes that this technology can make a big difference in the training process, and thus will keep carrying out dissemination and exploitation activities even after project completion, in order to guarantee the commercialization of the experiment results in the short/medium term.