

VIRTUALISING DESIGN REVIEWS AND VR TRAINING

Naseni's VR-Enhanced Revolution

IMPACT

- VR modelling facilitated product review
- VR training promoted accurate assembly and operator proficiency



ABOUT THE CUSTOMER

The National Agency for Science and Engineering Infrastructure (NASENI) is a Nigerian government agency established in 1992 with the goal of advancing science, technology, and innovation for purposes of socio-economic development. NASENI conducts research, develops innovative technologies, and builds infrastructure in areas like renewable energy, electronics, and machinery. The agency collaborates with institutions and industries, facilitates technology transfer, ensures quality standards, and promotes capacity building. Operating under the Federal Ministry of Science and Technology, NASENI plays a vital role in reducing Nigeria's reliance on foreign technology and fostering indigenous technological capabilities.

TURBINE DESIGN

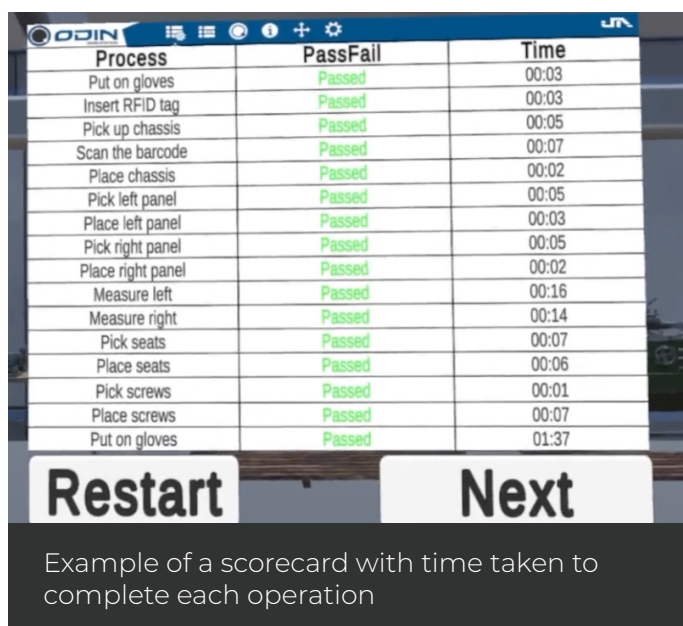
NASENI was tasked with formulating a comprehensive design and implementation strategy for a hydrokinetic turbine – an exemplar of renewable energy devices – aimed at providing an ecologically sound means for electricity generation. Notably, this innovative solution sought to circumvent the challenges commonly encountered in conventional hydropower units, such as high civil infrastructure costs and the requirement for a considerable energy gradient. Recognising the nascent nature of this initiative, ODIN Manufacturing was invited to collaborate and support NASENI in presenting the concept to potential investors. The mandate encompassed the creation of a three-dimensional (3D) visualisation of the turbine's design and a virtual demonstration of the assembly process, a critical aspect due to the turbine's substantial dimensions.



VIRTUALLY REAL

Our strategic approach involved the transformation of the design into an immersive 3D model accessible through our ODIN VR platform and a compatible VR headset. This technological endeavour allowed prospective investors to gain a tangible perspective of the turbine's enormity in a virtual simulation. Additionally, we meticulously replicated the intricate assembly procedures in a 3D format, affording stakeholders, including customers and investors, a comprehensive insight into the components and assembly steps required to build the turbine.

Once the proposal was accepted, ODIN VR converted all pertinent assembly steps into a virtual format. These virtual simulations subsequently became the training simulation for the operators, guiding individuals through each assembly step through a synergistic blend of visual cues and voice-guided instructions. Incorporating the principles of gamification further elevated the training process, improving engagement within the virtual environment. Although the quantification of operator performance was not a primary objective, it is noteworthy that in other contexts, this approach frequently serves as a catalyst for performance improvement, with trainees seeking to optimise their scores upon training completion.



Process	Pass/Fail	Time
Put on gloves	Passed	00:03
Insert RFID tag	Passed	00:03
Pick up chassis	Passed	00:05
Scan the barcode	Passed	00:07
Place chassis	Passed	00:02
Pick left panel	Passed	00:05
Place left panel	Passed	00:03
Pick right panel	Passed	00:05
Place right panel	Passed	00:02
Measure left	Passed	00:16
Measure right	Passed	00:14
Pick seats	Passed	00:07
Place seats	Passed	00:06
Pick screws	Passed	00:01
Place screws	Passed	00:07
Put on gloves	Passed	01:37

Restart **Next**

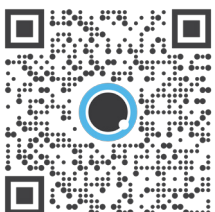
Example of a scorecard with time taken to complete each operation

Seeing the turbine displayed in virtual reality allowed investors to better gauge its impressive size and purpose, while the VR training module showed how easily achievable its assembly could be.



CONCLUSION

The collaboration between NASENI and ODIN Manufacturing has resulted in a groundbreaking solution that not only addresses the pressing need for environmentally friendly energy sources in Nigeria but also showcases the potential of cutting-edge technology in advancing sustainable development. The conversion of the hydrokinetic turbine design into an immersive 3D model through ODIN VR's innovative platform has allowed potential investors to grasp the sheer magnitude of the project, fostering a deeper understanding of its significance. Furthermore, the integration of assembly simulations into the virtual realm has not only aided in operator training but has also demonstrated the power of gamified learning, enhancing engagement and proficiency. This endeavour stands as a testament to the transformative impact that the collaborative efforts of government agencies and technological pioneers can have on propelling indigenous technological capabilities forward and making sustainable progress.



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