Connected Worker Hub; Centralized Safety Practices

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Abstract

Objectives/Scope: Internet of Things (IoT) technologies have proven to be essential in all industries. The Oil and Gas Industry is no different; therefore, it is not surprising that the applications of IoT in the field is tremendously contributing toward huge cost savings as well as increasing safety measures. Connected Worker is one of the emerging IoT practices. It leverages wearable Industrial Revolution 4.0 technologies to bridge the gaps between operators in the fields and engineers in the headquarter. This abstract is to share with the audience the experience of a proof of concept that is currently undergoing to evaluate the performance of two technologies.

Methods, Procedures, Process: The first evaluated technology is “Digital Helmet” where devices are mounted on operators and used in several cases such as the case of an expert assistance required during inspection, an emergency, or general guidance. The devices are intrinsically safe and can be used to establish video calls via a remote assistance application installed on the device. Using the camera and Augmented Reality (AR) features, the engineer can provide and illustrate the required assistance through visualised instructions through the helmet lens to guide the operator. The second evaluated technology is “Smart Watches”, distributed to all operators in the field. Each watch is used to monitor human body vital signs (heart rate, blood pressure, heat stress) and track the location of the operator. Thus, the utilization of smart watches could be extended to determine restricted zones breaches and set to proactively alert the responsible function.

Results, Observations, Conclusions: With the right type of connectivity, the technologies can successfully connect operators with engineers. It was observed that, unlike the Smart Watch, the Digital Helmet device requires an industrial Wi-Fi network for it to perform at its best capacity since it transmits large amount of data (video). Smart watch on the contrary, can perform well with minimum connectivity such as long-range Bluetooth, LoRa or Wi-Fi.

Novel/Additive Information: After researching the different practices across the industry, and the market, it was observed that there is no single platform that reads from diverse technologies with different technology providers. This project is introducing a single platform where most Connected Worker devices are feeding in real time. This is to centralize safety practices and ensure proactive response to potential health hazards. This project received two patents for the methods and technologies used to detect violation, predict incident, and inform the responsible function through custom devices.