UJ develops intelligent technology to monitor health conditions

A shortage of skilled staff and budget shortfalls are a growing concern in the healthcare industry, with the ever-increasing number of in-patients in hospitals and elderly-care facilities. This is particularly the case in Gauteng, owing to the migration patterns.

Associate Professor Wesley Doorsamy

In light of this, the University of Johannesburg (UJ)'s Institute Intelligent Systems (IIS) has conducted research a developed an intelligent, low-cost, smart toolkit that may assist healthcare practitioners monitor and diagnose patients. The device, named e-mutakalo (Tshivenda word for 'health') is able to do this remotely by collecting, processing and analysing real-time vital signs data. This means that the device can automatically detect proble and alert the medical staff in the event of an emergency.

The device brings together technologies of the fourth industrial revolution (4IR) to make real impact in society. "This technology allows for a more natural and unobtrusive approach to continuous monitoring and observation patients, as it works on the principle of non-invasive monitoring. It uses wireless sensor nodes, ambient intelligence techniques to monitor the patient's comfort and condition and it is able to detect and diagnose problems," Wesley Doorsamy, an associate professor and researcher at the IIS, says.

The need for this technology is especially needed for patients seeking medical attention whilst healthcare practitioners or care providers are on intervals between patients. "This device has in-built capability to automatically alert the responsible medical staff, treating doctor and others."

Home care

He points out that it is envisioned that this device could be deployed for home-care purposes allowing people/patients to stay at home rather than in expensive healthcare facilities such as hospitals and nursing homes, as it provides an efficient and cost-effective alternative to on-site clinical monitoring. "Accurate recordin of patient data and seamless sharing amongst care providers, doctors and other healthcare providers is also possible through the system," he says.

"Artificial intelligence (AI) plays a major role in the delivery of health services. AI has already transformed some

areas of health and medicine towards clinical decision-making. We trust that the rollout of the wearable sensing technologies might serve as a foundation for value-based care approaches while improving outcome and efficiency of healthcare delivery."