



eMoyo
future technology healthcare

Introducing the KUDUwave™





By harnessing artificial intelligence and automation we are disrupting the industry by making primary health care both affordable and accessible

Healthcare services are rapidly moving towards delivery through technologies such as mHealth, eHealth and Telemedicine. All of which require the collection of high quality data to inform decisions and generate accurate diagnosis.

eMoyo is a medical technology company that researches, develops and produces medical devices that are changing the nature of primary health care. By harnessing artificial intelligence and automation we are disrupting the industry by making primary health care both affordable and accessible. We believe automation of primary health care such as assessments for sight, hearing, heart, lungs and other key body systems is the future of biomechatronics.

Worldwide, 1 in every 25 people suffers from debilitating hearing loss. Of those 360 million people, 3 million are situated in South Africa alone. 1 in 5 over the age of 65 are hearing disabled, while 1 in 12 children suffer from hearing loss. This means that in an average class of 36 children at least 3 will not be able to hear their teacher.

Hearing disability, if undiagnosed or misdiagnosed, can lead to depression in both children and adults, shorter life span, dementia, decreased function in speech processing, poor academic achievement and unemployment.

In the current age of mobile applications it will come as no surprise that some are able to perform rudimentary hearing tests, however, accurate screening and diagnosis of a patient's hearing system requires advanced technology not available from a mobile phone.

1 in 12 children suffer from hearing loss meaning that in an average class of 36 children at least 3 will not be able to hear their teacher



The KUDUwave™

There is a global shortage of audiologists and the current population growth rate means that we are unlikely to ever catch up to the demand without technological intervention

eMoyo's flagship product, The KUDUwave™ is a high quality, mobile, type 2 clinical diagnostic audiometer. The KUDUwave™ is the first commercially available product in a line of products currently in development and brings significant cost saving, improved accessibility and true mobility to hearing screening and diagnosis.

A combination of bio-mechatronic technology and proprietary software remove the need for expensive and difficult to transport sound booths, making the KUDUwave™ a truly mobile and cost effective solution. The intuitive system makes automated testing simple enough for anyone to operate with minimal training, while featuring advanced manual testing functionality that provides the precision audiologists require.

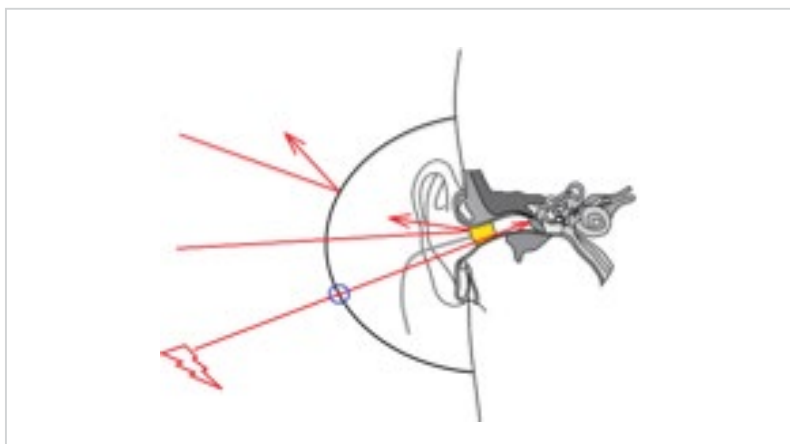
There is a global shortage of audiologists and the current population growth rate means that we are unlikely to ever catch up to the demand without technological intervention. The telemedicine capabilities of the KUDUwave™ allow audiologists to offer evaluations remotely, enabling a single audiologist to consult to various teams on the same day, worldwide. Boosting efficiency and further capitalising on a scarce resource. The intuitive system makes automated testing simple enough for anyone to operate with minimal training, while featuring advanced manual testing functionality that provides the precision audiologists require.

How does the KUDUwave™ eliminate the need for a sound booth?

In the first stage, the ear cup blocks the majority of external noise.

In the second stage, noise that manages to pass through the cup is blocked by the foam eartip placed inside the ear canal.

As a third line of defence, the KUDUwave™ is fitted with sensors that will determine if noise levels are loud enough to penetrate both initial stages and reach the eardrum, in which case the hearing test will automatically be paused until the noise subsides.



The KUDUstation™ is a touchscreen kiosk incorporating the KUDUwave™ headset



The KUDUwave™ is a CE and FDA certified medical device meaning that it has undergone rigorous testing in Europe and the USA to ensure that it complies with medical device requirements.

eMoyo's research and development team are constantly working on additional hardware and software products for the KUDUwave™. Some of which include, but are not limited to, a Tympanometer to test pressure in the middle ear to detect middle-ear pathologies and Otoacoustic emissions for hard to test populations. These additions will allow for objective testing and hearing screening.

How it Works

The patient's hearing is tested using the KUDUwave™ and an audiovisual response based computer program. The data is then processed by our advanced software. The patient is then notified of the test results via SMS. Should the software uncover an issue, the patient will simultaneously be referred to a specialist for treatment.

The KUDUwave™ in Action

Pharmacy, Hospital waiting area, GP reception area, Primary Health Care clinic

Should an issue be uncovered the system will simultaneously notify a healthcare professional of the results who will contact the patient for further treatment

The KUDUstation™ is a touchscreen kiosk incorporating the KUDUwave™ headset. Conveniently placed in waiting and reception areas the KUDUstation™ allows patients to test their own hearing.

A patient purchases a coupon with a unique QR barcode printed on it. Using the touch screen kiosk, the patient then scans the code to unlock the test.

The KUDUwave™ ear tips are inserted into the ear canal (with the assistance of a nurse or otherwise trained individual) and the headset is placed over the ears. The patient is then guided through the automated program providing simple responses to audiovisual stimulation. After a few minutes of testing, the patient enters their personal details, mobile phone number and submits the test data.

The patient then receives the test results via SMS. Should an issue be uncovered the system will simultaneously notify a healthcare professional of the results who will contact the patient for further treatment.

Government legislation currently states that every child should have their hearing tested at least once every 3 years



School Screening Programme

If required, the parent will also be informed of the need for further treatment by a doctor or audiologist

Government legislation currently states that every child should have their hearing tested at least once every 3 years.

Until now, processing this volume of tests would have been very difficult. Thanks to our technology, the eMoyo team equipped with only 12 KUDUwave™ systems are able to screen up to 100 children per hour, with minimal disruption to class schedules.

With the School Screening programme, a child receives a permission slip for a parent to sign with a unique QR bar code to unlock a hearing test. Either the school, the parent, an NGO or the Department of Education will pay for the QR code.

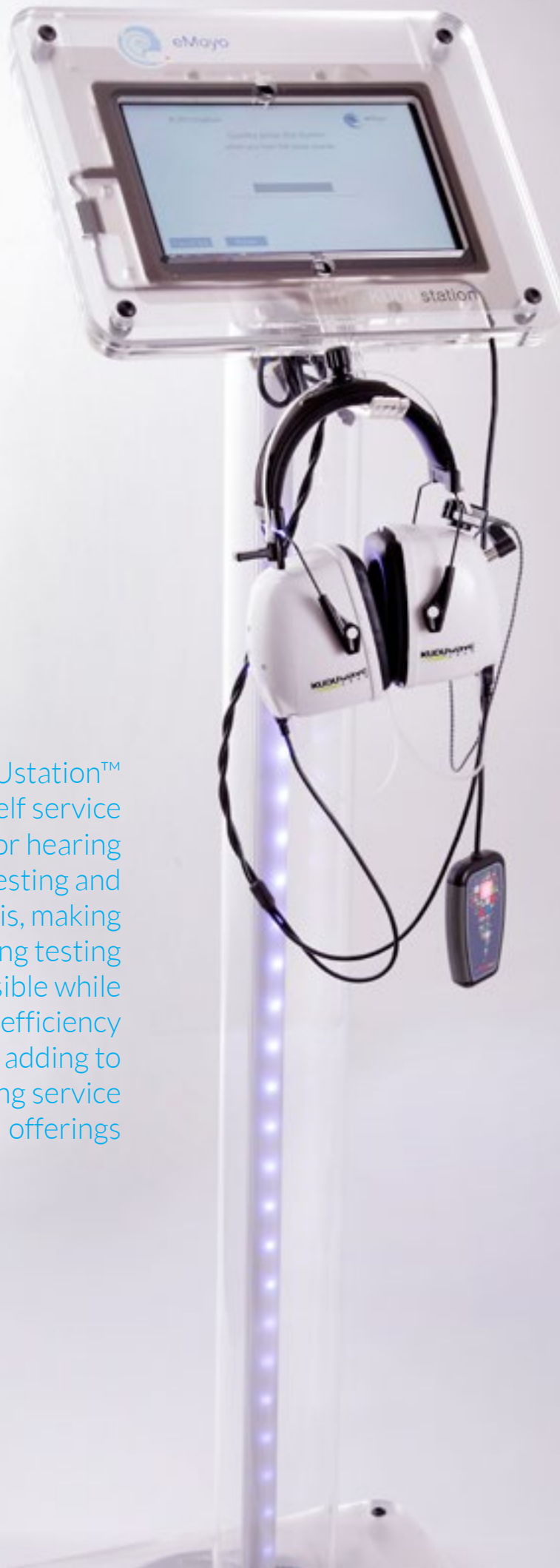
The test is completed and by the time the child gets home an sms notification would have already been sent to the parent containing the results. If required, the parent will also be informed of the need for further treatment by a doctor or audiologist.

Department of Health

Hearing loss due to medication is a major problem for patients receiving antiretroviral medication (ARVs) or tuberculosis (TB) treatment.

The KUDUwave™ assists in early diagnosis and prevention of further hearing loss due to toxic medication.

A nurse places the device over the patient's ears and scans the QR code on the patient's file to start the test. Once complete, the test results are processed and the physician is immediately notified of the results via SMS, indicating whether or not the medication needs to be changed to prevent further hearing loss.



The KUDUstation™ offers self service options for hearing testing and diagnosis, making hearing testing accessible while increasing efficiency and adding to existing service offerings

Occupational Health Care

On-site testing means that cost, time and impact on production is reduced

The KUDUwave™ is used by occupational health service delivery companies such as Primecure, EoH and OCSA to regularly test the hearing of employees in factories and mines as required by the Occupational Health and Safety Act. The level of mobility offered by the KUDUwave™ makes it the ideal technology for geographically dispersed and mass testing applications.

eMoyo also offers hearing screening services to various companies and industries. Our team, consisting of six trained individuals and 12 KUDUwave™ systems, is able to perform over 100 tests per hour. On-site testing means that cost, time and impact on production is reduced, while simultaneously mitigating the risk of false referral and quickly identifying the correct path of treatment or action to be taken.

The KUDUwave™ is versatile and the mobility it provides is unique. From rural outreach programs to bedside testing in ICU wards, one system can do it all



Key Benefits

The KUDUwave™ is able to perform almost anywhere, all that is required is a relatively quiet environment and a laptop.

The KUDUwave™ is intuitive and can be easily used by both medical professionals and technicians with minimal training alike.

The KUDUwave™ is versatile and the mobility it provides is unique. From rural outreach programs to bedside testing in ICU wards, one system can do it all.

The KUDUstation™ offers self service options for hearing testing and diagnosis, making hearing testing accessible while increasing efficiency and adding to existing service offerings.

The KUDU screening (currently offered in our school screening programme) is an efficient, scalable and mobile service for mass hearing screening and diagnostics.



eMoyo
future technology healthcare

eMoyo is an ISO-13485 medical device quality assurance company

1st Floor Silhouette House, 179 Beyers Naude Drive, Northcliff, 2195, South Africa
P O Box 4944, Cresta, 2118, South Africa
Tel: +27 11 782 1154 | Fax: +27 11 86 542 0142 | Email: www.emoyo.net

eMoyoDotHoldings (Pty) Ltd | Reg No: 2015/055484/07 | Director: Dr Dirk (H L) Koekemoer