**Darren Mc Neely (DT2114): Vestibular Rehabilitation Application / VRA**

Vestibular disorder effects people of all ages and can be a debilitating condition. It is caused by damage or disease to the inner ear resulting in; dizziness, unbalance, migraines, anxiety and social impacts (Sufferers appear unstable). This system will be utilized by both physiotherapists and sufferers of neurological or inner ear disorders.

The project includes an **Android Tablet** application linked to a head tracking sensor, **RFduino Sensor** (Accelerometer & Gyroscope) to monitor and supply live feedback to patients as they are doing the exercise. The application is fully equipped with tailored exercises and built in collaboration with a physiotherapist. **Microsoft’s Azure** Cloud platform is employed for both user account credentials and for logging exercise results. The data gathered from these results, will produce greater evidence for this form of treatment and will see improvements through analytics to the exercise program as a whole, determining which exercises were most effective and for what duration.

Audio and visual demonstrations for each exercise will guide the user though each step of their recovery. Good communication with a physiotherapist is essential for a speedy recovery. Graphs are deployed to present the physiotherapist with up to date visual information of how the patients are progressing.

The application offers a simple cross communication path between the patient and physiotherapist using the **Google Cloud Messenger** notifications combined with **Microsoft’s Azure** Cloud platform. This gives the patient the ability to voice any worries or questions to the physiotherapist without having to schedule a meeting first.