The SMART System: Stroke Management with Augmented Reality Technology

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Purpose : To improve the vision, lifestyle, safety and recovery of the vision impaired and stroke recovery patients suffering from hemianopia and vision induced hemiplegia with the use of an Augmented Reality system (ARS). Procedure : Experiments were performed to assess the functions and capability of devices to construct an optimised ARS for vision improvement. Preferred design aspects to optimise the “capture”,“conversion” and “display” of the visual image were examined. Quantitative and qualitative assessments to visual improvements with the SMART system using various task trackers and real life testing were performed. Data : The optimal SMART Glasses design utilises a light weight virtual reality head piece coupled with a smart phone device. The smart phone was programmed to easily capture real time video as seen by the patient and convert the resulting augmented reality into a new optimised form. This was performed by transformation software incorporated into the phones apps. Initial testing has shown that patients have the ability to significantly improve their object definition and thus improve their life safety and life quality. Conclusion : The SMART glasses system has the ability to significantly improve the life of visually impaired people by highlighting object definition and enhancing vision. The SMART glasses can also be used to improve the life quality and safety of stroke recovery patients through manipulating their vision to improve brain processing speed and thus physical recovery.

Awards Won:
Second Award of $2,000