Abstract—The NCTU team integrated the wireless EEG recording system, VR headset, VR treadmill, and ActiGraph device to build a 3D virtual reality navigation physiological testing platform. This platform is well designed to investigate the navigation ability and as an innovation assessment for aging and dementia.

Introduction

Dementia has become a significant health and social problems in a modern world. Although its causes still cannot be accurately identified, the earlier discovery the better mitigation. Therefore, how to develop a set of biological or behavioral markers for improving the effective predictions of disease progression is the most important issue in the scientific and clinical communities. The recent finding has showed that Alzheimer’s disease (AD) has a strong connection with the operation of brain navigation system. The progress of dementia is the function of the performance of navigation and individual navigation strategy seems to be a good predictor for the probability of Alzheimer and the progress of the disease.

Method/Results

We integrated following device:

![Diagram of integrated devices](image)

**Figure 1. The 3D virtual-reality navigation physiological testing platform**

**Figure 2. Navigation Task includes different navigation ability to accomplish**

Conclusion

This 3D virtual-reality navigation physiological testing platform can provide a nature way to investigate the navigation ability and assess the progress of for aging and dementia.

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References
