Mobile Visual Performance Profiler (mVP2)

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Technology description

Ophthalmologists at UC San Diego have developed a tablet-based, cloud-enabled method of measuring spatial and temporal aspects of visual and cognitive performance. This technology is the first comprehensive suite of visual impairment tests that can be implemented on a single portable device (e.g. iPad). Existing traditional tests are administered by a variety of different devices, wall and hand-held charts.

This mobile visual performance profiling (MVP2) technology combines several visual performance tests into a single portable device that accelerates testing time, data entry, and analysis.

Created to assess a wide variety of conditions in the eye or brain that impair vision, the mVP2 enhances and improves the sensitivity of vision testing by combining different domains of vision (e.g., contrast with concomitant visual processing speed) in novel ways.

The mVP2 includes a comprehensive test suite:
1. Visual Acuity (VA);
2. Contrast Acuity (CA);
3. Contrast Sensitivity (CS);
4. Visual Processing Speed (VPS) at different contrast levels;
5. Divided Attention (DA) at different contrast levels;
6. Motion Detection;
7. Stereo-acuity;
8. Hue Discrimination/Matching;
9. Pursuits, saccades and eye movements;
10. RT/CRT;
11. Visual search- Trails A/B;
12. Visual Memory-BVRT.

Traditional vision tests are not typically integrated into a single testing device, resulting in medical assistants or clinicians using multiple charts or devices in multiple locations. Test data is recorded on paper or automatically by a device that is not integrated with other devices. Meta-data of tests are usually not available for immediate interpretation and decision-making. Mobile tablets, smart phones,

and laptop computer platforms will offer mobility, accessibility, and affordability that are key indicators of quality medicine. They will make it easier to deliver cost-effective care that is comprehensive and coordinated by ensuring its continuity. Current methods are also generally not portable.

Additional Information

Application area

Improved visual performance testing has widespread initial application throughout ophthalmology and optometry, but the market potential goes beyond traditional clinical eye care. mVP2 will permit primary care, neurology, gerontology and other clinical care providers to expertly administer visual performance tests to evaluate brain-based (as well as eye-based) visual impairments such as stroke, Alzheimer’ s disease, Parkinson’ s disease and multiple sclerosis.
Clinical research: mVP2 can also be used for clinical research (outcomes) and clinical trials (clinical end-points for treatment alternatives for any given condition affecting visual perception) by any clinical specialty that wishes to use methods to evaluate visual performance and quantitate visual impairment.

Institution

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