

## KIDZEYEZ™

A child-friendly perimeter system to accurately monitor and record visual field defects of small children and adults with learning difficulties:

- Presents age and sex specific animations engaging for young children
- Assesses child's reflexive head and eye movement to view peripheral target
- Doesn't require the child's head to be static

The clinical applications of *KidzEyez* include:

1. Early diagnosis and monitoring of visual field deficit from visual pathway tumours in children
2. Detection of visual field defects in children and adults with learning difficulties, enabling the visual impairment teaching services to individualise their teaching methods

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**Background**

Childhood brain tumours and other neurological conditions commonly cause visual field defects as an initial finding. Frequently the diagnosis of such tumours in children is missed due to the paucity of visual symptoms, and sight may be irretrievably lost by the time the diagnosis is made. Earlier diagnosis by identification of visual field loss would enable the child to have sight saving and potentially life saving therapy.

While visual field testing is straight-forward in adults, it relies on the individual sitting still and looking at a target ahead of them for up to 10 min per eye. Young children and patients with learning difficulties cannot manage these tests.

Current approaches to visual field testing in children are inaccurate and insensitive. The absence of a reliable and acceptable technique for detecting visual field loss in children means that the diagnosis of a brain tumour is often made too late, when irretrievable visual loss has occurred and the tumour is more difficult to treat.

**Technology**

Dr Louise Allen, a paediatric ophthalmologist at the University of Cambridge and Dr Adar Pelah, an electrical engineer at the University of York, have developed a child-friendly visual field test system

called *KidzEyez*. With *KidzEyez* the child sits on their carer's lap and watches a central video image on a plasma screen while targets are presented sequentially at different locations in the visual periphery (Figure 1). If the target falls within the child's visual field, the child will reflexively move their head and eyes to view the target, which can be scored by an orthoptist assessing the child via a webcam. The test only takes about 2 minutes to perform in each eye.

*KidzEyez* has several advantages for young children, including:

- not requiring the child's head to be static
- presenting age and sex specific animations that will be engaging for young children
- assessment based on the child's reflexive head and eye movement to regard the peripheral target.

*KidzEyez* is currently in clinical trials at the NHS Addenbrooke's Hospital site of the University of Cambridge.

**Commercialisation**

We are seeking partners for licensing, collaboration and development of *KidzEyez*.

*KidzEyez* is protected by international patent application PCT/GB2010/001599.

