Title: A Modular Tactile System Designed to Aid Blind and Visually Impaired Students Understand the Complexities of Road Intersections.

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Aim:
To design a relatively cheap tactile graphic with enough detail and flexibility to assist with teaching blind and vision impaired children to understand traffic flows at different types of intersections and the wide variety of pedestrian access routes associated with them.

Method:
Intersection designs were broken down into key components suitable to form the basis of a modular, 3D representation. The different components were modelled in plywood to the approximate scale of the "matchbox" car and laser etched to generate textures on the ply to demark nonpaved surfaces. The models were then used as moulds for vacuum forming white high impact polystyrene (HIPS) sheet to produce cheap robust replicas.

Road line markings, including pedestrian crossings, were also laser cut from HIPS sheet. Miniature TGSI strips and traffic signals (represented by small plywood models of just the tactile arrow and button unit mounted at a 30 degree angle) can be adhered to the modules where appropriate, using double sided tape.

A working model of an intersection under study can be created by placing the relevant modules on a base mat of thin black nonslip foam which represents the road surface.

Results:
There is sufficient friction between the HIPS and foam surfaces for the intersection modules to remain in place while being handled by students exploring the relationship between the road, kerb, nature strip, footpath and building-line. Line markings required some additional taping to secure their location.

The model can be used to demonstrate where and when a blind traveller would need to make an auditory scan for vehicles at different types of intersections and to illustrate the importance of understanding the variability in alignment of kerb ramps at intersections.

Conclusion:
This system provides the versatility to explore the concepts of roundabouts, multilane roads, splitter islands, bus stops, pedestrian crossings, signalised intersections and slip roads, before facing them in reality.

"See" for yourself! (Intersection models are available for hands on evaluation)

Due to circumstances somewhat beyond my control, this poster presentation is more a proposal/prototype than a tried and tested mobility aid. So please feel free to offer advice, criticism or suggestions for improvement. Thanks, Claire

Claire has a diverse background in scientific research, from experimental nuclear physics to human reproductive biology, but in semi-retirement she has thrown herself into woodwork creativity. With the purchase of a CNC laser cutter Claire founded a small business making plywood puzzles and games for young children and for the past 5 years ChildsPly has had as its primary focus the design and manufacture of tactile games and teaching aids for blind and visually impaired students.

Take enough foam for 2 intersections. Need cardboard support for text to be mounted vertically on table if necessary. Take double sided tape, clips, scissors, signs for intersection type, ply roundabout, draft intersections VIC, Braille text? Take example of plywood mould.