Proximity detection for Mini-Mobots

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Abstract

The aim of this project was to design and build a proximity detection and range-finding system, for distances up to about 2 metres, for the `Mini-Mobot' mobile robots.

The theory of Ultrasonics, and range-finding by ultrasonics was investigated, and a basic system outline was designed. This was then refined to try to protect against the ultrasonics on one robot interfering with those on another, and adapted to include some inter-robot ultrasonic communications capability, whilst keeping the increase in circuitry to a minimum.

The full circuit was then designed and built in sections, as a prototype, and any problems solved, before a PCB was laid out, and the final circuit built. This circuit was then tested and although one unexpected result arose, the circuit worked successfully and better than had been hoped as a range-finder, detecting small objects well. It worked about as well as expected as a simple communications system.