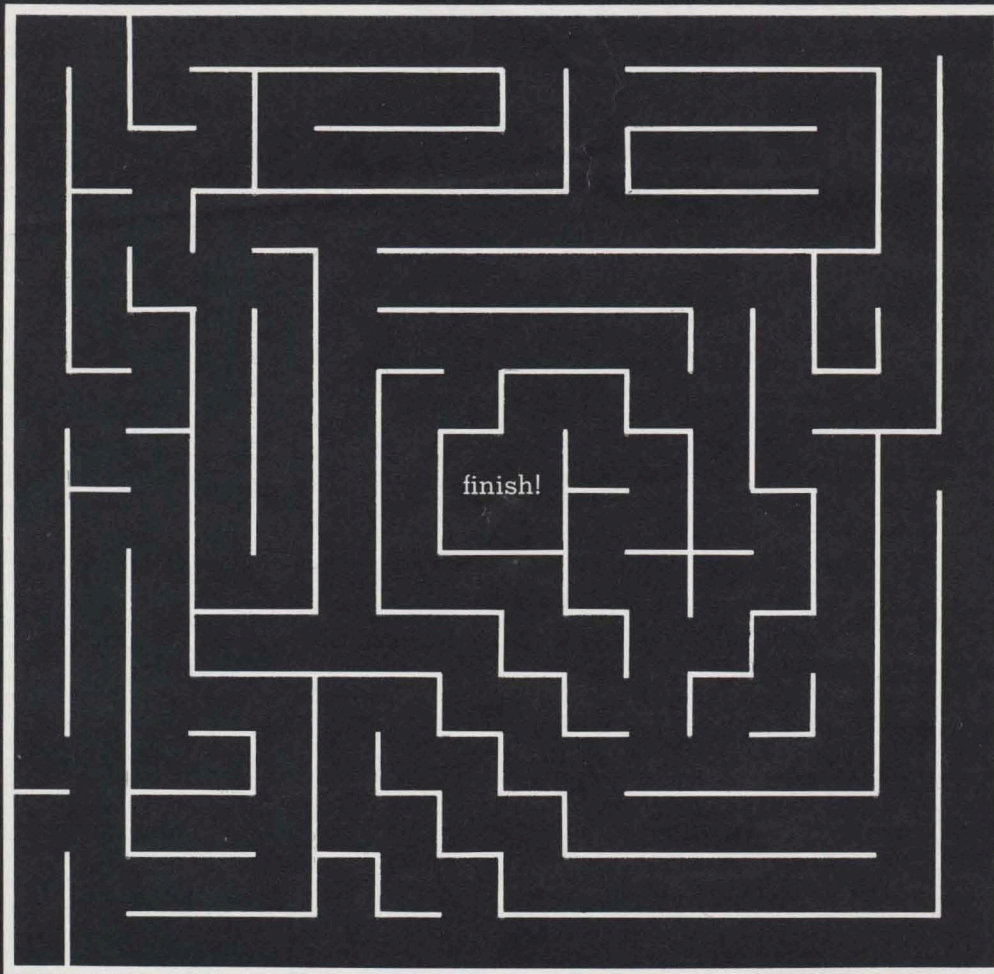




Judges Susan Rosenbaum (left), Gwen Bell (center), and Hirofumi Tashiro with John Billingsley commentating.





start

What is a Micromouse?

A micromouse is a mobile sensing robot that can negotiate a maze. The contest rules state that the mouse must be self-contained, cannot use combustion as an energy source and cannot leave part of its body behind while in the maze. It cannot jump over, climb, scratch, damage or destroy the maze walls. It must be less than 25cm in both length and width; there is no height restriction.

Most mice use active infrared sensors to locate the walls. A pulse of 1000 nanometer infrared is shone downwards from a vane that extends over the walls adjacent to the mouse. The red top of a wall sends back a strong reflection, while the black floor does not. Some mice, notably the Finnish team have used acoustic sensors. The Noriko mice used the position gyroscope as an additional

sensing device to preserve accurate control during rapid cornering.

The most popular microprocessor used to control the mice is the Z80. In 1981, Alan Dibley went so far as to saw off the keyboard of a Sinclair ZX80 computer and use it intact to control his Euromicro finalist, 'Thezeus'. Indeed, the 'Thezeus' series were largely built out of bits of junk—piano wire, rubber bands (for tires), and parts from radio-controlled models.

Maze layout used in Mouseathon finals

The maze was selected to have a number of routes to the center which had similar length, but a varying number of corners. This offered a subtle test of the mouse's strategy in choosing between rapid cornering and acceleration down a straight. Note also the zig-zagging required in the final approach.

The maze consists of 16×16 squares, each 18cm on a side. The walls are 12mm thick, 5cm high, painted white with red tops. The target is the center, and the start is at the 'bottom left' corner. The running surface is chipboard, painted black with non-gloss emulsion paint. The walls are composed of removable segments connecting posts at the corners of the squares, so that mazes can readily be changed.

Championship Rules (similar to rules applied at the Museum Mouseathon)

Each mouse has 15 minutes in the maze. It can make as many runs as it likes, and the fastest 'inward' run from the start to the center is recorded. If a mouse 'gets into trouble', it must be taken out of the maze and restarted at the beginning. No information on the maze can be fed to the micromouse. For full rules see IEEE *Micro*, Vol 4 No 6, (1984) pg 86; for information about future contests, contact Micromouse Committee, IEEE Computer Society, 1730 Massachusetts Avenue NW, Washington, DC 20036.