

MAPPING OF EQUIPMENT WITH A MICROPROCESSOR CONTROLLED
X - Y MOVING STAGE.

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Mapping is a crucial part of equipment calibration to ensure uniformity of response. Since mechanical movements are involved, automation requires some caution to avoid possible damage. To increase security, the acquisition processor, where the program may be frequently changed by the user, is distinct from the microprocessor which actually controls the mechanics with an uncorruptable program in EPROM.

The mapped equipment is kept fixed and vertical while a sensing/exciting probe can be moved in 2 dimensions over $2,50 \times 2,50 \text{ m}^2$ by the action of two printed circuit motors. The motor speeds are controlled through a DAC interface and the position of the moving stage is measured within 1 mm by optical sensing of two cheap workshop rules. The Motorola 6800 microprocessor also controls various security checks and communicates with the outside world through simple commands on a standard RS 232 C serial interface. This allows connection to a simple TTY/VDU or to any other processor (i.e. acquisition computer).

This device has been used to check and map the proportional shower chambers used in the forward calorimeters of the UA 1 experiment.

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