

## INTERACTIVE VIDEO FOR TRAFFIC CONTROL DEVICE TESTING

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## ABSTRACT AND CONCEPTUAL SCHEMATIC

A method for testing signs, delineators, flashing lights and other traffic control devices is being designed at the New Jersey Department of Transportation. This method will involve partial simulation of the driver's view.

The latest video technology now used in the broadcast industry will be put together into a system that any state can have and afford. The equipment is well developed and off-the-shelf.

Traffic control devices can be programmed onto tapes of actual moving roads. Contrived truck, bridge, curve and other forms of blockage of traffic control devices can be realistically programmed in. Device exposure can be flashed or exposed for controlled durations and tested for any message with any color.

INTRODUCTION

The driver's view of innovative traffic control devices has been a necessary part of the research in NJDOT. Still graphics, slides and photo inventories have been used, but this has been excessively time consuming and labor intensive. Expensive field studies of signs and other devices have been conducted with only crude preliminary studies performed in a laboratory setting.

With very advanced and relatively low cost video and computer generated electronic equipment available today, a fairly sophisticated system can be put together for laboratory use. We will be able to go out onto a road section where modifications are being considered, take video shots from a moving car, bring that cassette back into the laboratory and superimpose or key in road modification plans and preliminary placements of TCD's for testing with the driver's view, with no trial or error in the field.

IMPORTANT SYSTEM FEATURES

A component as opposed to a composite (NTSC) signal is important because there is less loss of resolution and there is no need to broadcast.

A camera with high sensitivity to low light is needed to produce adequate night shots with the use of ordinary headlights.

Time code capability allows precise control over every video frame. This is necessary for keying in traffic control devices and other objects into the moving videotape.

Special effects systems are available for 2D and 3D objects that are computer generated for manipulation. Real time and animated effects and progressive slides would each have a purpose.

## ADVANTAGES

Realistic productions on videotape can be accomplished with minimum labor and in very little time in comparison to old methods.

Signs and other devices to be keyed in can be designed interactively and a considerable amount of choice will be available in both selected, modeled and preprogrammed effects.

Since we are not building many new roads, the driver's view of existing roads needing change will be simulated on this system. Actual roads can be reviewed for modification from the driver's perspective.

The use of a flat screen will permit a number of subjects or viewers to be processed at once.

Video resolution is higher than it used to be.

The equipment does not need extensive development, is off-the-shelf and can be put together readily. Some training on operation may be helpful.

The cost of the equipment is at the industrial level, while the quality is at the broadcast level.

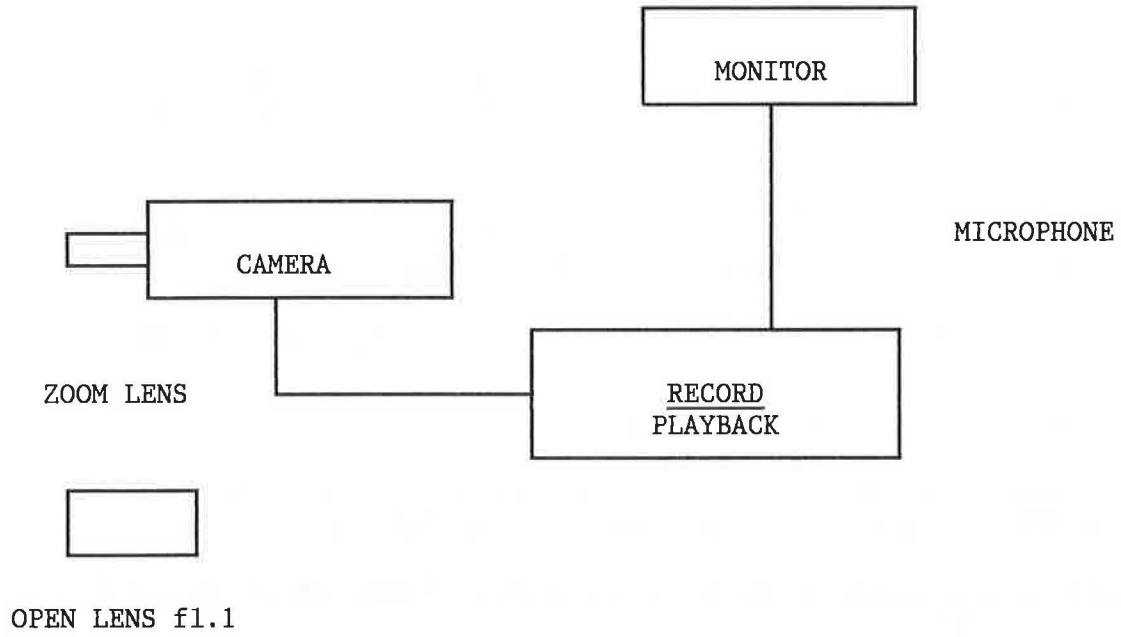
Rapid sign design, with proper fonts stored in memory, can be accomplished, previewed for a variety of viewer tests and produced onto tape of the actual driver's view of the road at any number of different locations. Messages can be flashed, or exposed, for any length of time in any combination of colors, and programmed to move or turn in any dimension or path.

Walls, delineators, barriers, lanes, bridges, construction zones and interchanges can also be simulated.

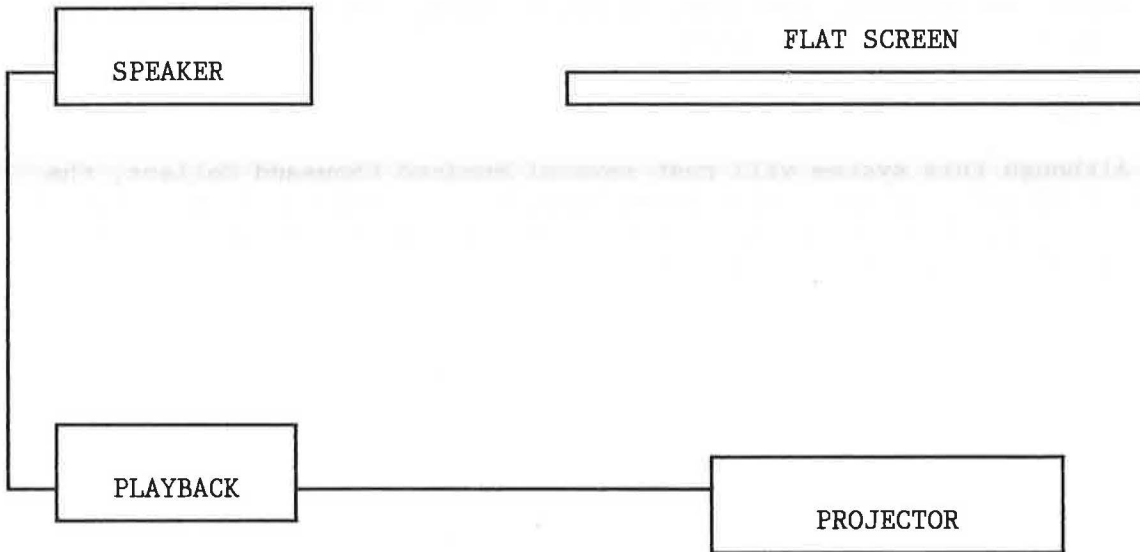
## FUTURE PLANS

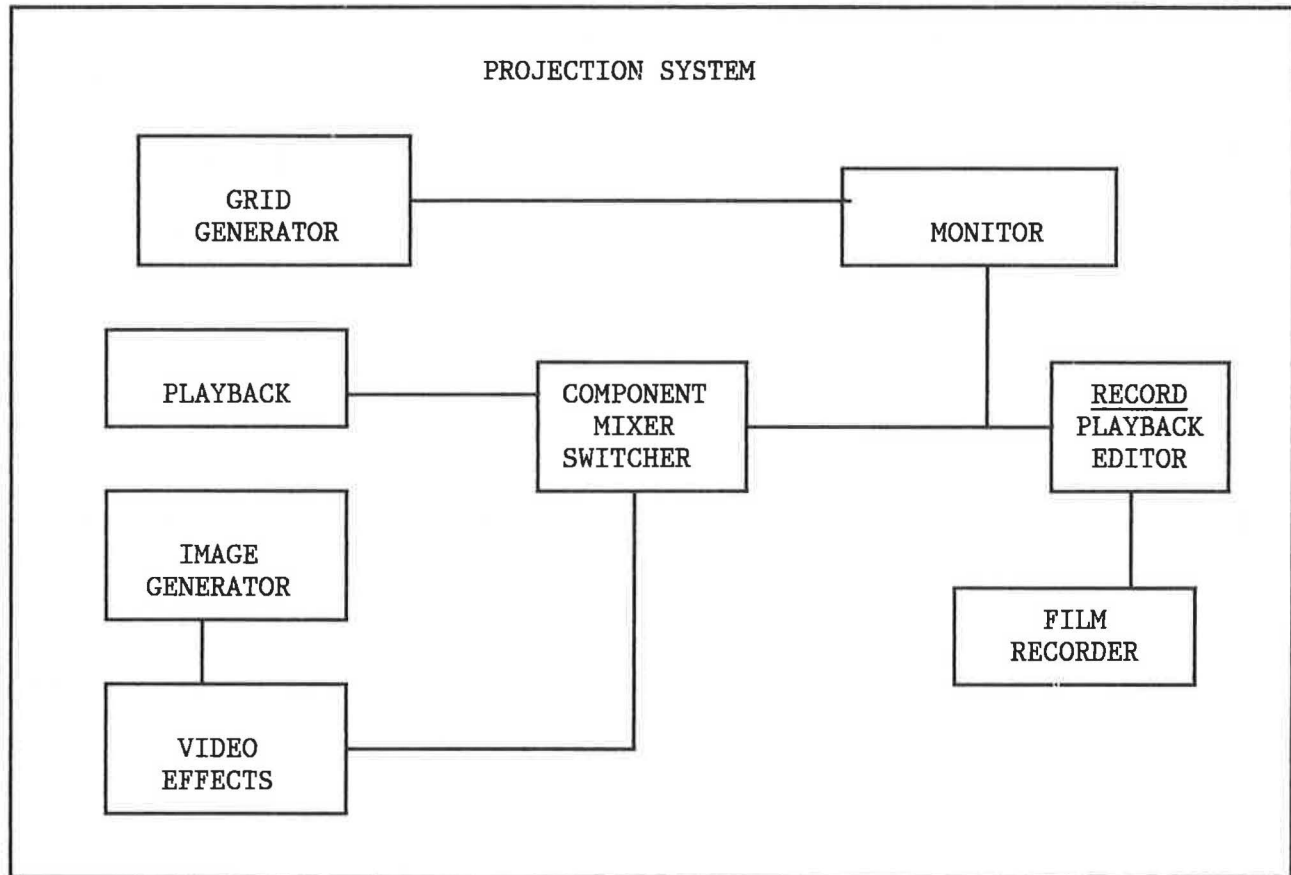
Although this system will cost several hundred thousand dollars, the advent of PC and component video technology, has reduced the former cost of more than a million. Additional capabilities are foreseen as the technology is developed and costs continue to decline.

FIELD SYSTEMS



PROJECTION SYSTEM





#### IMPORTANT SYSTEM FEATURES

- COMPONENT SIGNAL - TRANSCODING
- CAMERA WITH VERY LOW SENSITIVITY  
HIGH RESOLUTION
- TIME CODE EDITING
- CHYRON MODEL VP-2

#### ADVANTAGES

- o REALISTIC PRODUCTIONS IN MINIMUM TIME
- o INTERACTIVE OPERATION WITH FLEXIBLE EFFECTS
- o SPECIFIC TO ANY PARTICULAR ROAD
- o MANY SUBJECTS AT SAME TIME
- o HIGH RESOLUTION

#### ADVANTAGES

- o OFF-THE-SHELF EQUIPMENT
- o INDUSTRIAL COST - BROADCAST QUALITY
- o USABLE FOR SIGN LAYOUT, REVIEW, AND A VARIETY OF TESTS
- o IMPROVED MOTORIST INFORMATION EFFECTIVENESS