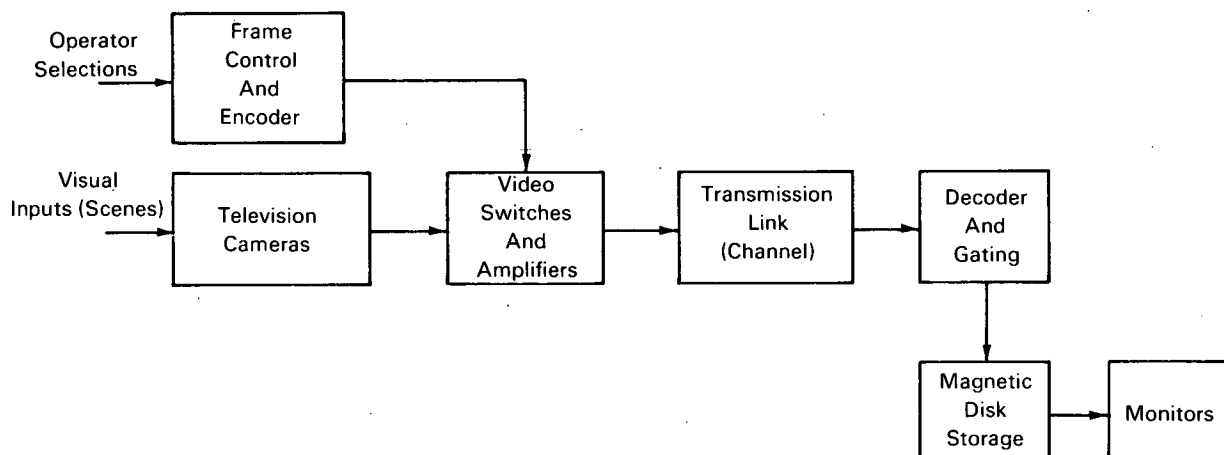


NASA TECH BRIEF



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Multiplex Television Transmission System



The problem:

The transmission of several different television pictures from cameras in one general location to viewers in a distant location normally requires a separate transmission channel for each camera. If the scenes viewed change slowly or not at all, the channels are used inefficiently, resulting in unnecessary expense.

The solution:

A time-multiplexing system that enables several cameras to share a single commercial television transmission channel.

How it's done:

A standard commercial television channel transmits thirty frames (complete scenes) per second. In the multiplex system (simplified block diagram), an operator at the camera end of such a standard transmission link uses control switches to assign the output of each camera to be transmitted during one or more particular frame times in each second, in any sequence he chooses. The sequence repeats once each second.

The number of frames allocated to each camera is decided on the basis of the expected or observed rates of change of the several scenes to be viewed. Each transmitted frame is identified by digitally encoded signals added to the basic camera signal. Automatic equipment at the monitoring end of the link decodes the camera identification. It then routes the successively transmitted frames from the various cameras to the corresponding monitors and simultaneously to corresponding magnetic disk recorder/reproducer tracks. The recorded frames from each camera that is not transmitting are reproduced and channeled to the proper monitor at a rate of 30 frames per second. Every monitor thus receives 30 frames per second regardless of how often the content of the frame is changed (transmitted). In this way flicker-free pictures are obtained with resolution and signal-to-noise as good as in a multichannel camera system. Motion rendition would be the only picture quality sacrificed if the picture content changed rapidly.

(continued overleaf)

Notes:

1. This system should be useful in industries wherever it is essential to visually monitor several operating areas or instrument panels from a remote location.
2. Inquiries concerning this system may be directed to:

Technology Utilization Officer
Manned Spacecraft Center
Houston, Texas 77058
Reference: B67-10576

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

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(MSC-11595)