NASA TECH BRIEF

Technique for Improving Solid State Mosaic Images

Emitter Columns

Collector
Rows

```
1...X.... 128
. . . . . . . . . . . .
. . . . . . . . . . . .
.XX. . . . . . . .
. . . .X. . .X. .
.X.XXXXXXX
. . . . . . . . . . . .
X. . . .12,800
```

X ⟶

Assumed Fault Locations
on Solid State Mosaic Sensor

⟶ Time

Shorted Element "Bright Spot"

```
000001000
00000000000  ⎤ No Faults
00000000000  ⎦
01100000000
```
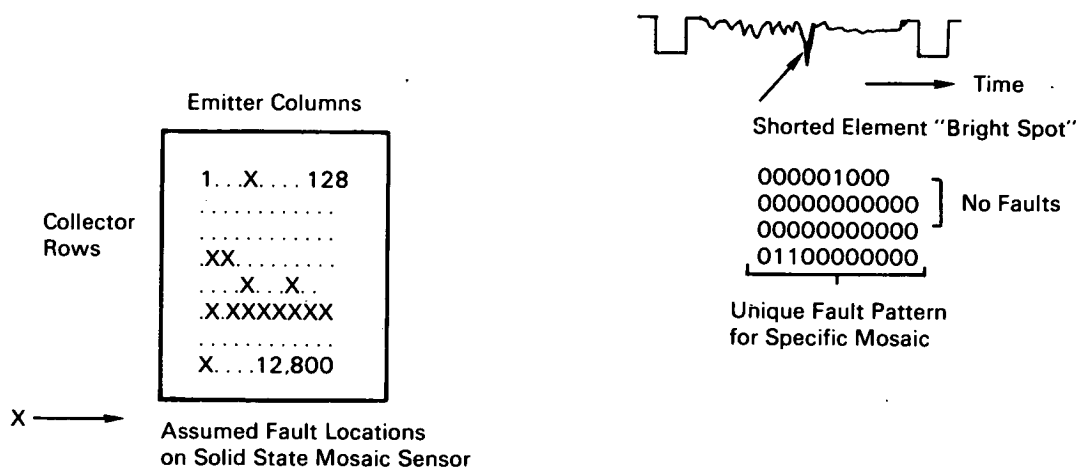
Unique Fault Pattern
for Specific Mosaic

Figure 1. Fault Pattern Illustration

The innovation described in this Tech Brief employs a novel method for identifying and correcting mosaic image faults. The technique may be used in solid state visual display and opto-electronic presentation systems.

The composite video signal, containing timing, blanking and video information, has a random number of bright spots caused by defective sensing elements, Figure 1. The read-only memory, Figure 2, controls pulse generation that blanks out the bright spots. The collector-addressing read-only memory selects the output bits from the emitter memory that contains the stored fault pattern. The collector memory cycles through 100 collector lines and gates the appropriate fault word to the blanking circuit.

Two memory banks can be time-shared to produce the required sequencing for a 200 × 256-element sensing matrix. This limited storage requirement is due to the fact that generally less than 100 faulty elements occur in a 51,200-element mosaic. The memory units can be time-multiplexed to increase word access time. Read-write memories in which stored data can be electronically converted are also applicable to this technique.

Notes:

1. This development is in the conceptual stage only, and as of date of publication of this Tech Brief, neither a model nor a prototype has been constructed.

2. No additional documentation is available. Specific questions, however, may be directed to:

   Technology Utilization Officer
   Marshall Space Flight Center
   Huntsville, Alabama 35812
   Reference: B69-10676

Clock (From Existing System)

Read-Only Memory

Read-Only Memory

1024 Bit

8 × 128 Word Format
Assumed

8 × 128
Format

No Faults

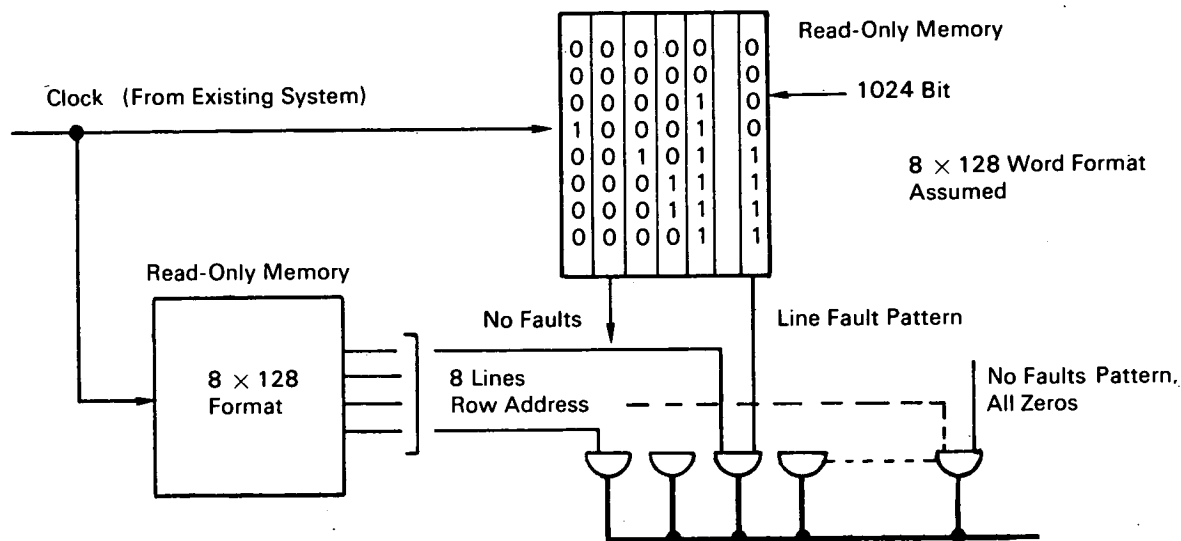Line Fault Pattern

8 Lines
Row Address

No Faults Pattern,
All Zeros

Figure 2. Generation of Selective Blanking Pulses