

management and other tasks essential to operation, and would encrypt data if necessary.

The RFID chipset would handle RFID communications (including implementing RFID protocols in cooperation with the controller). As in ordinary RFID tags, the RFID chipset would accept RF power received via the antenna, convert the RF power to DC power, and distribute the power both within itself and to any other circuitry as needed. The RFID chipset would interact with the controller to pass data from the sen-

sor memory to the host computer and/or to pass commands from the host computer.

The host computer would control the RFID reader. The host computer would contain application software and/or firmware that would enable the user to communicate with the sensory device and process data received from the sensory device.

This work was done by Thomas Jedry and Eric Archer of Caltech for NASA's Jet Propulsion Laboratory. Further information is contained in a TSP (see page 1).

In accordance with Public Law 96-517, the contractor has elected to retain title to this invention. Inquiries concerning rights for its commercial use should be addressed to:

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Refer to NPO-43144, volume and number of this NASA Tech Briefs issue, and the page number.

⚙️ Six-Message Electromechanical Display System

This system would overcome the three-message limit of prior such systems.

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A proposed electromechanical display system would be capable of presenting as many as six distinct messages. This system would be a more capable and more complex successor to the proposed system reported in "Four-Message Electromechanical Display System" (MFS-31368), *NASA Tech Briefs*, Vol. 24, No. 4 (April 2000), page 32. In contrast to the now-proposed six-message system and the previously proposed four-

message system, a typical conventional electromechanical display system is limited to three messages.

The three-message limit arises as follows: A typical electromechanical display system contains display elements with multiple flat faces that are rotated into view to present a message. Each display element can present, for example, an alphanumeric character or part of an image. If the display elements have flat

faces, then the number of messages is limited to three because three is the maximum number of sides of a polygon that can be placed contiguously with other, identical polygons along a common baseline and that can be rotated without interfering with an adjacent polygon.

In the proposed system (see Figure 1), each display element would include a cylinder having a regular hexagonal cross section. The adjacent

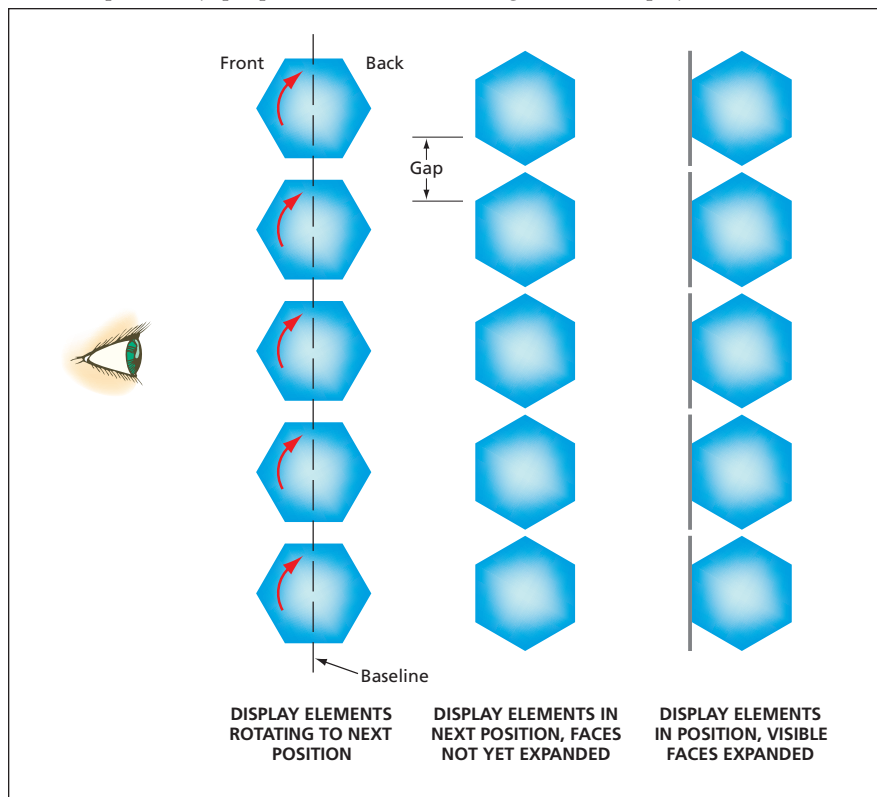


Figure 1. **Adjacent Hexagonal Cylinders** would be rotated to present any of six messages to viewers looking at the front side.

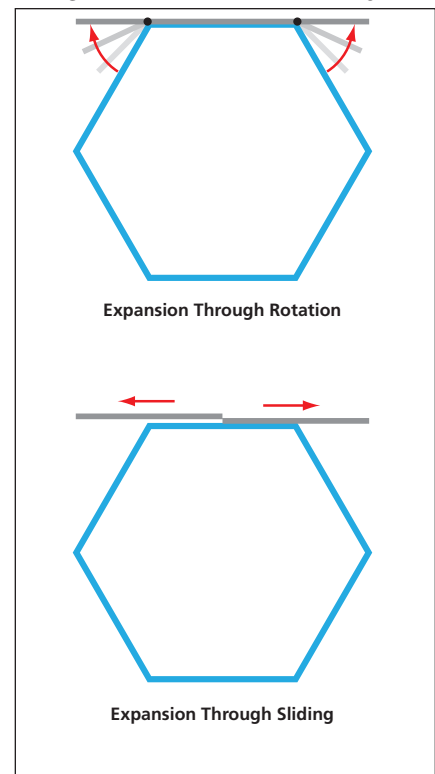


Figure 2. The **Visible Face of Each Hexagonal Cylinder** would effectively be expanded by rotation or sliding of panels.

elements would be positioned along a baseline with just enough room that each element could rotate without interfering with an adjacent element. As in the systems mentioned above, each face of each element would represent a portion of a message. Each element could be rotated to one of six equally spaced angular positions to present the desired portion of one of six messages. However, unlike in prior systems, merely orienting the desired

faces to form a flat surface visible to intended viewers would not suffice to present the message because there would be large gaps between the faces of the aligned hexagons.

To enable filling of the gaps between the visible aligned faces of adjacent hexagons, the affected portions of the messages would be placed on panels that would be rotated or slid to effectively expand the visible faces to fill or nearly fill the gaps (see Figure 2). After presenta-

tion of a message, panels would be retracted, restoring the hexagonal outlines to enable rotation of the elements to display the next message. Optionally, panels on both the front and the back of the display could be extended simultaneously to present different front and back messages.

This work was done by Richard T. Howard of Marshall Space Flight Center. Further information is contained in a TSP (see page 1). Refer to MFS-31576-1.