Advanced Infant Car Seat Would Increase Highway Safety

This system would keep a baby safe, comfortable, and entertained, thereby reducing distractions for an adult driver.

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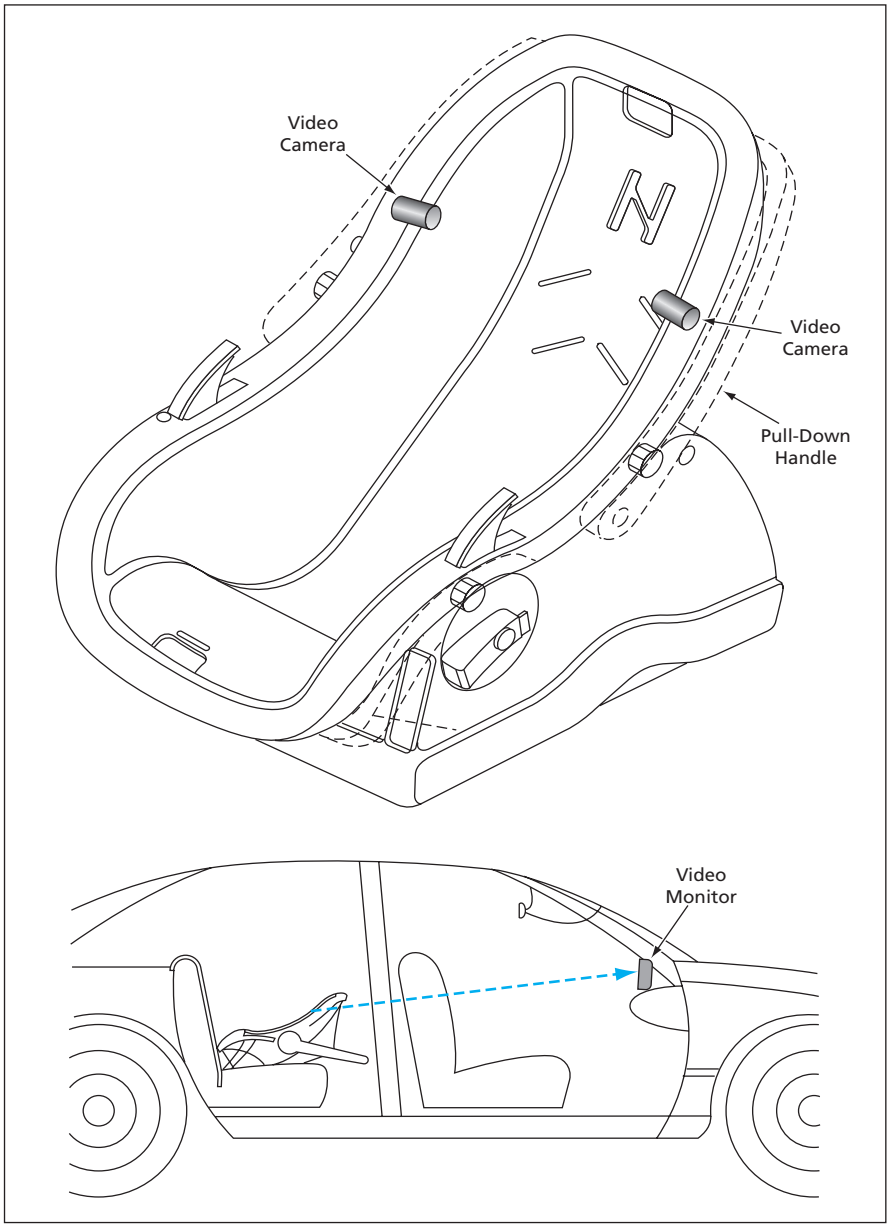
An advanced infant car seat has been proposed to increase highway safety by reducing the incidence of crying, fussy behavior, and other child-related distractions that divert an adult driver's attention from driving. In addition to a conventional infant car seat with safety restraints, the proposed advanced infant car seat would include a number of components and subsystems that would function together as a comprehensive infant-care system that would keep its occupant safe, comfortable, and entertained, and would enable the driver to monitor the baby without having to either stop the car or turn around to face the infant during driving.



Miniature Video Cameras in the sides of the advanced infant car seat would transmit images to a video monitor on the dashboard, enabling the driver to monitor the infant visually while facing the road ahead.

The system would include a vibrator with bulb switch to operate; the switch would double as a squeeze toy that would make its own specific sound. A music subsystem would include loudspeakers built into the seat plus digital and analog circuitry that would utilize plug-in memory modules to synthesize music or a variety of other sounds. The music subsystem would include a built-in sound generator that could synthesize white noise or a human heartbeat to calm the baby to sleep. A second bulb switch could be used to control the music subsystem and would double as a squeeze toy that would make a distinct sound.

An antinoise sound-suppression system would isolate the baby from potentially disturbing ambient external noises. This subsystem would include small microphones, placed near the baby's ears, to detect ambient noise. The outputs of the microphone would be amplified and fed to the loudspeakers at appropriate amplitude and in a phase opposite that of the detected ambient noise, such that the net ambient sound arriving at the baby's ears would be almost completely cancelled.

A video-camera subsystem would enable the driver to monitor the baby visually while continuing to face forward. One or more portable miniature video cameras could be embedded in the side of the infant car seat (see figure) or in a flip-down handle. The outputs of the video cameras would be transmitted by radio or infrared to a portable, miniature receiver/video monitor unit that would be attached to the dashboard of the car. The video-camera subsystem can also be used within transmission/reception range when the seat was removed from the car.

The system would include a biotelemetric and tracking subsystem, which would include a Global Positioning System receiver for measuring its location.

This subsystem would transmit the location of the infant car seat (even if the seat were not in a car) along with such biometric data as the baby's heart rate, perspiration rate, urinary status, temperature, and rate of breathing. Upon detecting any anomalies in the biometric data, this subsystem would send a warning to a paging device installed in the car or carried by the driver, so that the driver could pull the car off the road to attend to the baby. A motion detector in this subsystem would send a warning if the infant car seat were to be moved or otherwise disturbed unexpectedly while the infant was seated in it: this warning function, in combination with the position-tracking function, could help in finding a baby who had been kidnapped with the seat.

Removable rechargeable batteries would enable uninterrupted functioning of all parts of the system while transporting the baby to and from the car. The batteries could be recharged via the cigarette-lighter outlet in the car or by use of an external AC-powered charger.

This work was done by Richard Dabney and Susan Elrod of **Marshall Space Flight Center**.

This invention is owned by NASA, and a patent application has been filed. For further information, contact Sammy Nabors, MSFC Commercialization Assistance Lead, at sammy.a.nabors@nasa.gov. Refer to MFS-31707-1/8/14-1.