

Vehicle Controller



For the Apollo lunar landings of the early 1970s, NASA developed a Lunar Rover to permit exploration of the moon miles from the immediate vicinity of the landing site. The Rover was designed to allow an astronaut to drive one-handed, using an airplane-like joystick to accelerate, brake and steer the vehicle. That technology is being applied to a system that offers severely handicapped people an opportunity to drive highway vehicles, providing them mobility for more productive lives.

Called UNISTIK, the system is being developed by Johnson UNISTIK Corporation, Boulder, Colorado under the joint sponsorship of NASA and the Veterans Administration Rehabilitation Engineering Research and Development Service, Washington, D.C. The UNISTIK vehicle control system employs a joystick that combines the functions of steering wheel, brake pedal and throttle pedal, thus can be operated by handicapped persons who have no lower limb control and only limited use of upper extremities. The driver simply moves the joystick forward to accelerate, backward to brake and from side to side for steering; any combination of these movements can be used. The UNISTIK control is shown in the upper photo; it is undergoing extensive testing in a Ford van, pictured at right during a demonstration in Washington, D.C.

The UNISTIK system is designed as an addition to an ordinary van. The patented modification utilizes digital electronics, microprocessors and high-torque actuators—one each for brake, throttle and steering—all easily installed entirely under the dashboard as a “bolt-on” accessory. The installation allows full use of the vehicle’s normal controls by able-bodied persons; a push of a button switches from regular to UNISTIK control or vice versa. Under way since 1981, the project is now in its final development phase, expected to culminate in production of the system beginning in March 1986.

