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Edge Robotics, LLC introduces a network accessible, all-terrain robot designed and constructed to explore unstructured environments. The MX-701 platform's primary mission is video surveillance, and telemetry monitoring in a weather tight ruggedized chassis. Its motion control and compliment of sensors are fully accessible by multiple TCP/IP protocols utilizing a dual antenna 802.11n wireless system.

This platform allows first time roboticists to begin controlling and accessing all sensors via a graphical user interface and gamepad or directly logging into the robot via a shell (telnet or ssh). Advanced users will enjoy a clean well-architected network application programming interface (API), allowing the programming of complex navigation behavior. At the heart of the platform is a highly capable and environmentally tolerant vision system. The external camera is rated for IP67 environments. 'IP' stands for Ingress Protection, the digit '6' indicates total protection against dust and '7' means the device is protected against the effect of immersion between 15cm and 1m. The camera supports a pixel resolution of 720x480 pixels @ 30 fps with 180 degrees of pan and tilt. Two sonar modules fore and aft are capable of detecting objects from 6 inches to 35 feet away. The forward facing sonar is capable of panning 180 degrees, in effect making one sonar module behave like many statically mounted sonar modules. Objects detected at a distance can be scanned to detect edges allowing for more complex obstacle avoidance behaviors. A GPS module is also provided to give positional information to the operator or for performing complex navigation maneuvers. Finally an encoder measuring wheel rotation provides a means to measure distance traveled over terrain.

All motion and sensor resources are controlled via an industrial ITX PC running Ubuntu 9.04 Linux. Custom controller boards

interface with the host computer transforming computer commands into physical actions or reports of environmental data. A unique Scalable Sensor Bus (SSB) was developed for this platform to address the need to aggregate sensor data into a unified bus. Each SSB interface is controlled by an RS-232 port and capable of controlling 1000's of digital I/O, analog inputs, RC servo units and hundreds of sonar range finding devices. The TCP/IP server controlling the SSB interface is topology aware. A topology discovery process is performed at power up detecting all devices on the interface and automatically loading drivers. The user need only issue text commands (if logged into a shell) to control all SSB resources.

The MX-701 weighs in at 24lbs with batteries and occupies a volume of 16"x22.5"x11.5" (WxLxH, height not including antenna). Battery capacity ranges from 200 to 350 watt/hr affording the machine a generous run time and compute resources. With its small form factor and generous assortment of sensors and motion control, this platform offers both the novice and advanced roboticists a means of exploring and experimenting in outdoor environments.