ABSTRACT

The LYNX-UGV is ideal for construction management applications. The platform autonomously collects and transmits real-time data from a remote location to a base station for assimilation. The data including pictures, measurements, and reports are then transmitted in real-time and simultaneously to the design team members, the contractors, the construction managers, and the stakeholders in each of their own respective offices. Using the UGV as a construction management tool reduces the number of individuals on a project site location such as Engineers, Construction Inspectors, Surveyors, etc. The costs associated with personnel, travel, insurance, etc, are dramatically reduced, significantly increasing bottom line profits. The LYNX-UGV is also ideal for use in Military Urban Reconnaissance Programs, Civilian Police Departments, and Homeland Security Applications. The accuracy in determining field conditions and the ability to simultaneously transmit data in real-time to the end user enables the user to quickly and accurately assess field conditions, eliminating time delays experienced by human workforce constraints. IMS has described the capabilities presently planned for the deployment of The LYNX-UGV Unmanned Ground Vehicle and Multi-Censored Platform System. The platform may be modified varying the number and type of sensors dependent upon the users’ system requirements and desired results. A spirit of innovation and attention to technology continues to set IMS apart from the competition. As you look at IMS’s invention and compare it to conventional practices, you will come to understand our justifiable pride in being part of a lasting and important invention, The LYNX-UGV Unmanned Ground Vehicle-Autonomous Robotic Platform.
IMS INTELLIGENT MANAGEMENT SYSTEM, LLC, A W.E.C. COMPANY CONCEIVED THE IDEA EMBODIED IN THE LYNX UGV UNMANNED GROUND VEHICLE. THE LYNX UNMANNED GROUND VEHICLE (UGV) IS A REMOTELY OPERATED AUTONOMOUS ROBOTIC PLATFORM OUTFITTED WITH MULTIPLE SENSORS, TECHNOLOGICALLY ADVANCED EQUIPMENT, AND GLOBAL COMMUNICATION SYSTEMS.

[0001] The LYNX-UGV Unmanned Ground Vehicle is a remotely operated autonomous robotic platform outfitted with multiple sensors, technologically advanced equipment, and a satellite communication system. The LYNX-UGV is designed for use in the fields of Construction Management and Observation, Security & Surveillance Industries, including Border Security and Military and Civilian Police operations. The LYNX-UGV collects and transmits data from remote sites to specified locations in real-time using a customizable suite of Sensors particular to the requirements of each specific project or mission. The LYNX-UGV automates data collection and transmission and will ultimately revolutionize the role of man in the data collection and transmission of data by offering multiple while reducing personnel require to complete the tasks in remote and/or dangerous locations.

[0002] The components of LYNX-UGV data collection and transmission system are: 3D Laser Scanner; IPv6 Compliant Cameras; Ground penetrating Radar; Magnetic Imaging; Autonomous operated Robotic Platforms, including the Toolcat, the Chaos Slave Vehicle and the Helicopter (UAV); a Gun Mount to house the Laser Scanner and the Day/Night Camera; GPS; the Ruggedized IP v6 Compliant Camera; Tracking Radar; the 3D Stereoscopic Camera; a Heavy Caliber Automatic Weapon (or other weapon) that can be installed on the Gun Mount; and Global Satellite Communications to transmit real-time data and reports from a remote site to designated locations of all interested parties at designated locations, anywhere in the world.

What is claimed is:

1. IMS has invented the concept of The LYNX-UGV which is a remotely operated autonomous vehicle platform outfitted with Multiple Sensors that can easily be customized and enhanced for specific project requirements. In addition to the Multiple Sensors, the LYNX-UGV is also outfitted with a Satellite Communication System which transmits data in real-time from remote areas to designated locations anywhere in the world. The LYNX-UGV platform contains the most technologically advanced equipment and innovative solutions commercially available in the market place. The following is a detailed description of the functions of the equipment on The LYNX-UGV platform:

Robotic Platforms include the autonomously operated Toolcat UGV that carries all the Sensors, the UAV Helicopter and the “Chaos Robotic Slave Vehicle” equipped with the Stereoscopic Surfacing Imager to produce 3D Virtual Walk Through of building interiors along with the ability to produce highly accurate measurements;

A rugged 3D Laser Scanner Based Imaging and Digitizing System produces dense point cloud data to create 3D images of structures and other objects. The Laser Scanner can perform a full 360 degree with millimeter accuracy and return the data to the Base Station in real-time. The elimination of any need for post-processing allows for decisions to be made rapidly in the field:

IP v6 Compliant Cameras and audio recording cameras with 360 Degree Pan, Tilt, and Zoom, Video and Audio Recording, and Low Light Vision;

Ground Penetrating Radar (GPR) to locate and identify buried objects;

Magnetic Imaging to complement the GPR when required depth and/or wet soil conditions adversely impact the GPR;

Rugged Gun Mount to carry the 3D Laser Scanner, Tracking Radar, the Night/Day Camera and the Heavy Caliber Automatic Weapon;

Day/Night Camera for surveillance and observation;

Tracking Radar for detecting targets and directing cameras and/or heavy caliber vehicle mounted gun (optional) to the targets of interest;

3D Stereoscopic Camera for producing 3D images for ground Surveillance and measuring;

Heavy Caliber Automatic Weapon is optional equipment;

A Fly and Drive Satellite System providing a shipbable quick response communications system including rapidly deployable voice, data, and video communications capabilities to virtually anywhere on short notice; and

GPS for providing guidance for the autonomous vehicles and performing Field Surveys.

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