CPU Dual Core 800 MHz processor; and, (18) remote diagnostic and firmware update capabilities. The system components, steps and functionality described herein, individually and collectively, are believed to be novel and enhance the operation of the communication system over the prior art technology.

[0034A] In accordance with an embodiment of the disclosure, a communication system is provided. The communication system can be suitable for supporting the processing of communications regarding the tracking, location and status of field assets. The communication system can include:

a first computer server on the home network, said first computer server having processors with functionality to receive and process tracking, location and status information signals relating to field assets, said first computer server coupled to a first database for storing and maintaining information relating to said field assets and said first computer server being coupled to a home agent and a first gateway server for communication outside the home network;

a second computer server on a foreign network, said second computer server being coupled to a controller unit, said controller unit being coupled to a second gateway server for communication outside the foreign network and said controller unit being coupled to one or more antennas that receive radio transmitted signals from RFID tags, each of said RFID tags being associated with a field asset and said controller unit using said radio transmitted signals received by the antennas to produce tracking, location and status information signals that are communicated to the first computer server on the home network,

said controller unit having the functional capabilities that include a data collection engine that controls and supports the scanning operations and collection of data by and through the controller unit, a data communication engine that controls and supports the communication and data transmission operations by and through the controller unit; a smartpower engine that manages power consumption of the controller unit, identifies low battery power status, and transitions the controller unit to sleep mode to avoid battery drain, an RFID reader and multiplexer module that receives and manages the communications with multiple RFID signals using a multiplexed antenna configuration, a geolocation and tracking engine that controls and supports the geolocation, tracking, and status of the controller unit, RFID tags, and field assets associated with RFID tags, a CAN-BUS interface engine that supports two way communications between the controller unit and external devices, a vehicle

bus (OBD) engine manages all interactions between the controller unit and the vehicle; a controller device management engine that supports and manages all operational support components associated with the controller unit; and, an operations engine that supports and manages all component service engines and modules in the controller unit.

[0034B] In accordance with an embodiment of the disclosure, a communication sustem is provided. The communication system can be suitable for supporting the processing of communications regarding the tracking, location and status of field assets. The communication system can include:

a first computer server on the home network, said first computer server having processors with functionality to receive and process tracking, location and status information signals relating to field assets, said first computer server coupled to a first database for storing and maintaining information relating to said field assets and said first computer server being coupled to a home agent and a first gateway server for communication outside the home network;

a second computer server on a foreign network, said second computer server being coupled to a controller unit, said controller unit being coupled to a second gateway server for communication outside the foreign network and said controller unit being coupled to one or more antennas that receive radio transmitted signals from RFID tags, each of said RFID tags being associated with a field asset and said controller unit using said radio transmitted signals received by the antennas to produce tracking, location and status information signals that are communicated to the first computer server on the home network,

said controller unit having the functional capabilities that include a data collection engine that controls and supports the scanning operations and collection of data by and through the controller unit, a data communication engine that controls and supports the communication and data transmission operations by and through the controller unit; an RFID reader and multiplexer module that receives and manages the communications with multiple RFID signals using a multiplexed antenna configuration, and a geolocation and tracking engine that controls and supports the geolocation, tracking, and status of the controller unit, RFID tags, and field assets associated with RFID tags.

[0034C] In accordance with an embodiment of the disclosure, a method of transmitting communications is provided. Transmission of communications can, for example, be regarding the tracking, location and status of field assets. The method can include the steps of:

providing a first computer server on the home network, said first computer server coupled to a first database and a first gateway, said first computer server having processors;

supporting communications to and from the home network using said first gateway server;

providing a second computer server on a foreign network, said second computer server being coupled to a controller unit and a second gateway server, said second gateway server being used to support communication outside the foreign network;

coupling one or more antennas to said controller unit, said one or more antennas being capable of receiving radio transmitted signals from RFID tags;

receiving radio transmitted signals from RFID tags at said one or more antennas, each of said RFID tags being associated with a field asset, said radio transmitted signals being communicated to said controller unit;

producing tracking, location and status information signals at the controller unit using said radio transmitted signals received from the antennas;

communicating said tracking, location and status information signals from said controller unit to the first computer server on the home network,

receiving and processing tracking, location and status information signals relating to field assets using said processors at said first computer server, and,

storing and maintaining information relating to said field assets on said first database.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0035] The present invention supports field-based asset and inventory accounting network and services supporting location, telematics, sensors, asset and inventory data collection and processing, and the present invention supports the transmission of data into a proprietary cloud based Asset Management software, supporting asset and inventory accounting network and services supporting location, telematics, asset and inventory data collection and processing, including software used on tablet or smartphone including iOS®, Android®, Blackberry or Windows Phone® mobile platforms.

[0036] The present invention supports the use of telematics in network edge RFID devices for fixed and mobile tracking (inventory, movable assets, people, and any other RFID tagable items) using LTE, WiFi SAT or any other wireless communication protocols, and provides a mobile connectivity platform for real-time tracking of remote assets and inventory, in mobile or field-based environments including onboard wireless synchronization between mobile inventory and asset tracking. The present invention also includes a communication network interface supporting communications between a vehicle/equipment, the cloud, and other system components, including interface with RFID tagged devices over passive, active, Bluetooth, WiFi, near field, cellular and satellite communication protocols.

[0037] The present invention is machine-to-machine (M2M) mobile platform that has a controller that can communicate with RFID tags and receives RFID information into a mobile vehicle foreign network with an all-in-one mobile solution and also communicates with a home network having a computer server. The present invention provides an integrated command and communication platform to support communications by cell phone, WiFi, GPS, RFID controller, vehicle information controller, and real-time integration to optimize performance of the remote tracking network. With the use of the present invention, fleet services, mobile inventory, and asset tracking can be efficiently organized and conducted across a fleet vehicles, a multitude of remote tracking devices, and geographically around the world.

[0038] With the invention, the RFID data transmitted to and through the mobile vehicle network has greater throughput and less interference compared to transmissions from

What is claimed is:

WE CLAIM:

1. A communication system supporting processing of communications regarding tracking, location and status of field assets, comprising:

a first computer server on a home network, said first computer server having processors with functionality to receive and process tracking, location and status information signals relating to field assets, said first computer server coupled to a first database for storing and maintaining information relating to said field assets and said first computer server being coupled to a home agent and a first gateway server for communication outside the home network;

a second computer server on a foreign network, said second computer server being coupled to a controller unit, said controller unit being coupled to a second gateway server for communication outside the foreign network and said controller unit being coupled to one or more antennas that receive radio transmitted signals from RFID tags, each of said RFID tags being associated with a field asset and said controller unit using said radio transmitted signals received by the antennas to produce tracking, location and status information signals that are communicated to the first computer server on the home network,

said controller unit having functional capabilities that include a data collection engine that controls and supports scanning operations and collection of data by and through the controller unit, a data communication engine that controls and supports communication and data transmission operations by and through the controller unit; an RFID reader and multiplexer module that receives and manages the communications with multiple RFID signals using a multiplexed antenna configuration, and a geolocation and tracking engine that controls and supports geolocation, tracking, and status of the controller unit, RFID tags, and field assets associated with RFID tags.

2. The communication system according to Claim 1 further comprising:

said controller unit having a smartpower engine that manages power consumption of the controller unit, identifies low battery power status, and transitions the controller unit to sleep mode to avoid battery drain; a vehicle bus (OBD) engine manages all interactions between the controller unit and a vehicle; a controller device management engine that supports and manages all operational support components associated with the controller unit; and, an operations engine that supports and manages all component service engines and modules in the controller unit.

3. The communication system according to Claims 1 or 2 further comprising:

a CAN-BUS interface engine that supports two way communications between the controller unit and external devices, said two way communications being capable of remotely controlling and monitoring operations of a remotely located asset or location.

4. The communication system according to any preceding Claim further comprising:

a communication link between the home and foreign network supported over the Internet, a radio communication system, and/or a computer network.

5. The communication system according to any preceding Claim further comprising:

a computer pad located on the foreign network and coupled to the controller unit, said computer pad controlling the controller unit and other equipment coupled to the foreign network.

6. The communication system according to any preceding Claim further wherein said foreign network is a mobile foreign network that is mobile relative to the location of the home network.

7. The communication system according to any preceding Claim further comprising:

one or more data entry terminals located on said home network for access to the first computer server, home agent or database memory storage unit on the home network.

8. The communication system according to any preceding Claim further comprising:

one or more data entry terminals located on said foreign network for access to the second computer server or controller unit on the foreign network.

9. The communication system according to any preceding Claim further comprising:

a transceiver coupled to said home network through said first gateway providing a communications interface for communications to and from the home network, and or a transceiver coupled to said foreign network through said second gateway providing a communications interface for communications to and from the foreign network.

10. A method of transmitting communications regarding tracking, location and status of field assets, comprising the steps of:

providing a first computer server on a home network, said first computer server coupled to a first database and a first gateway, said first computer server having processors;

supporting communications to and from the home network using said first gateway server;

providing a second computer server on a foreign network, said second computer server being coupled to a controller unit and a second gateway server, said second gateway server being used to support communication outside the foreign network;

coupling one or more antennas to said controller unit, said one or more antennas being capable of receiving radio transmitted signals from RFID tags;

receiving radio transmitted signals from RFID tags at said one or more antennas, each of said RFID tags being associated with a field asset, said radio transmitted signals being communicated to said controller unit;

producing tracking, location and status information signals at the controller unit using said radio transmitted signals received from the antennas;

communicating said tracking, location and status information signals from said controller unit to the first computer server on the home network,

receiving and processing tracking, location and status information signals relating to field assets using said processors at said first computer server, and,

storing and maintaining information relating to said field assets on said first database.

11. The method of transmitting communications regarding the tracking, location and status of field assets in Claim 10, wherein said controller unit possesses functional capabilities that include a data collection engine that controls and supports scanning operations and collection of data by and through the controller unit, a data communication engine that controls and supports communication and data transmission operations by and through the controller unit; an RFID reader and multiplexer module that receives and manages the communications with multiple RFID signals using a multiplexed antenna configuration, and a geolocation and tracking engine that controls and supports geolocation, tracking, and status of the controller unit, RFID tags, and field assets associated with RFID tags.

12. The method of transmitting communications regarding the tracking, location and status of field assets in Claims 10 or 11, wherein said home network has a home agent.

13. The method of transmitting communications regarding the tracking, location and status of field assets in any one of Claims 10 to 12, wherein said controller unit possesses functional capabilities that include a smartpower engine that manages power consumption of the controller unit, identifies low battery power status, and transitions the controller unit to sleep mode to avoid battery drain; a vehicle bus (OBD) engine manages all interactions between the controller unit and vehicle; a controller device management engine that supports and manages all operational support components associated with the controller unit; and, an operations engine that supports and manages all component service engines and modules in the controller unit.

14. The method of transmitting communications regarding the tracking, location and status of field assets in any one of Claims 10 to 13, wherein said controller unit has a CAN-BUS interface engine that supports two way communications between the controller unit and external devices,

said two way communications being capable of remotely controlling and monitoring operations of a remotely located asset or location.

15. The method of transmitting communications regarding the tracking, location and status of field assets in any one of Claims 10 to 14, further comprising the step of:

communicating between the home and foreign network over the Internet, a radio communication system, and or a computer network.

16. The method of transmitting communications regarding the tracking, location and status of field assets in any one of Claims 10 to 15, wherein said controller unit is coupled to a computer pad located on the foreign network, said computer pad controlling the controller unit and other equipment coupled to the foreign network.

17. The method of transmitting communications regarding the tracking, location and status of field assets in any one of Claims 10 to 16, wherein said foreign network is a mobile foreign network that is mobile relative to the location of the home network.

18. The method of transmitting communications regarding the tracking, location and status of field assets in any one of Claims 10-17, wherein first computer server is coupled to one or more data entry terminals located on said home network for access to the first computer server, home agent or database memory storage unit on the home network.

19. The method of transmitting communications regarding the tracking, location and status of field assets in any one of Claims 10-18, wherein second computer server is coupled to one or more data entry terminals located on said foreign network for access to the second computer server or controller unit.

20. The method of transmitting communications regarding the tracking, location and status of field assets in any one of Claims 10-19, wherein said home network is coupled to a transceiver through said first gateway providing a communications interface for communications to and from the home network, and/or a transceiver coupled to said foreign network through said second gateway providing a communications interface for communications to and from the foreign network.