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MATERIAL MOVEMENT ROBOT PRODUCT SPECIFICATION SHEET

The MMR v5.0 is a rugged, autonomous 4x4 robotic vehicle built for industrial material handling. Its modular design and all-terrain mobility support with easily customisable payload make it ideal to use at warehouses, construction sites, agricultural sites, and harsh environments requiring efficient, low-intervention transport. The side doors and back door can be opened for easy loading / unloading. The hydraulic actuator can lift the dumper for unloading.



| | |
|--------------------------------------|---|
| System Voltage | : 46-54V |
| Safety Features | : Electric brakes, Emergency buttons, and Vision-based obstacle detection |
| Weight Limit | : 550 - 580 kg |
| Operating Temperature | : -10°C to 75°C |
| Full-charge Operation Time | : 6-8 Hours at full capacity |
| Battery Charging Duration | : 6-8 Hours / overnight |
| Overall Dimension (L x W x H) | : 1559 x 885.6 x 1172.3 mm |
| Dumper Dimension (L x W x H) | : 1409 x 850 x 490 mm |

High-Power Peripherals

Motors

Voltage: 48V DC
Output: 750 Watt
Type: BLDC
Gearbox Ratio: 1 : 45

Hydraulic Actuator

Voltage: 48V DC
Rated Load: 1 Ton
Actuation: Electro-Hydraulic
Pressure Calibration: Mechanical

Battery and Charger

Configuration: LiFePO₄ Battery
Voltage Range: 48-54V
Capacity: 50 Ah
Charger Voltage: 54.4V

Salient Features

| Sl. No. | Feature | Description |
|---------|--|---|
| 1 | Autonomous Navigation | Odometry and RTK-based navigation |
| 2 | Multiple Operation Modes | Autonomy, Remote control, Tele-operation |
| 3 | Liquid Cooling system | Radiator cooling for MMR compute system |
| 4 | Ventilation Cooling System | Fan-based cooling for electrical compartment |
| 5 | Alarms | Voice alerts of all remote actions, alarms and warnings |
| 6 | Autonomy missions | Web-based and voice-based via PC or Mobile Phone |
| 7 | Obstacle detection | Stereo camera with IR projector and Gyroscope |
| 8 | Automated-headlights | Headlight ON/OFF based on light/dark environment |
| 9 | Autonomy interruption notification | Communication on live mission dashboard and email |
| 10 | Wireless module | SIM-based, global bandwidth support |
| 11 | Autonomy supporting device | Wireless (easy to configure) GPS Base station |
| 12 | Machine usage history | Date, time, GPS, distance, Battery, Video feed, Sensor data, Speed data available on dashboard |
| 13 | Sensors and data modules | GPS, Ethernet Camera, IMU, Temperature sensors |
| 14 | Wireless Battery monitoring | Bluetooth-based Mobile app (Android, IOS) |
| 15 | 2.4GHz Flysky FS-i6S remote controller | GFSK radio-modulated controller with touch screen display of telemetry data and error/warning information |
| 16 | All-terrain tyres | Designed for off-road use, rated pressure: 40 PSI |