REMOTE BATTERY MANAGEMENT SYSTEM

BIOSTURK's remote battery monitoring system (RBMS) is a technology designed to monitor and manage the health and performance of batteries from a distance. This system is particularly developed for applications where batteries play a critical role, such as in uninterruptible power supply (UPS) systems, electric vehicles, renewable energy storage, telecommunications, and various industrial processes.

KEY FEATURES:

1. **Real-time Monitoring:** RBMS continuously monitors the status of individual batteries or battery banks in real-time. This involves tracking parameters such as voltage, current, temperature, and state of charge.
2. **Data Logging:** RBMS records historical data on battery performance, allowing for trend analysis and the identification of potential issues before they become critical.
3. **Alerts and Alarms:** If the RBMS detects any abnormalities or potential problems with the batteries, it can generate alerts or alarms. This allows operators or maintenance personnel to take timely corrective actions.
4. **Remote Access:** The RBMS provides remote access capabilities, allowing users to view battery performance data and receive alerts from any location with an internet connection.
5. **Diagnostic Tools:** The RBMS include diagnostic tools to analyze the root causes of battery issues, helping to streamline troubleshooting and maintenance processes.
6. **Predictive Maintenance:** By analyzing historical data and trends, the RBMS can help predict when maintenance or replacement of batteries might be necessary. This predictive capability can reduce downtime and extend the overall lifespan of the batteries.
7. **Integration with Management Systems:** The RBMS may integrate with broader energy management or facility management systems, providing a comprehensive view of the overall power infrastructure.

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Regular monitoring and analysis of the following parameters can help identify potential issues early on, allowing for preventive maintenance and optimizing the performance and lifespan of the battery pack.

MONITORED ESSENTIAL PARAMETERS

1. **Voltage:**
   - **Cell Voltage:** Measure the voltage of individual cells within the battery pack to ensure they are balanced. Voltage imbalances can lead to reduced performance and potential safety issues.
2. **Current:**
   - **Charge/Discharge Current:** Monitor the current flowing into or out of the battery pack. An abnormal current may indicate a fault or a problem with the charging or discharging process.
3. **State of Charge (SoC):**
   - **SoC Level:** Determine the SoC to understand how much energy is currently stored in the battery. This is crucial for managing charging and discharging cycles.
4. **Temperature:**
   - **Cell Temperature:** Monitor the temperature of individual cells and the overall battery pack. Extreme temperatures can impact battery performance, efficiency, and safety.
5. **Cycles:**
   - **Cycle Count:** Keep track of the number of charge and discharge cycles the battery pack has undergone. Understanding the cycle count helps in estimating the remaining lifespan of the battery.
6. **Balancing:**
   - **Cell Balancing:** Ensure that individual cells are balanced, meaning they have similar voltages. Unbalanced cells can lead to uneven wear and reduced overall pack performance.
7. **Impedance:**
   - **Internal Resistance:** Measure the internal resistance of the battery cells. Increased resistance may indicate aging or damage to the cells.
8. **Charge/Discharge Efficiency:**
   - **Efficiency:** Evaluate the efficiency of the charging and discharging processes. Lower efficiency can result in energy losses and reduced overall performance.
9. **Voltage Under Load:**
   - **Load Voltage:** Measure the voltage of the battery pack under load conditions to assess its performance during active use.

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BIOSTURK's RBMS observation can be applied across various sectors where battery-powered systems are utilized. Here are some sectors that can benefit from RBMS observation:

1. **Telecommunications:**
   - RBMS monitoring ensures the reliability of backup power systems for cell towers and communication infrastructure.
2. **Data Centers:**
   - Critical for monitoring the health and performance of uninterruptible power supply (UPS) systems that provide backup power to data centers.
3. **Electric Vehicles (EVs):**
   - Enables real-time monitoring of battery health, state of charge, and performance in electric cars and other electric vehicles.
4. **Renewable Energy:**
   - RBMS is essential in solar and wind energy storage systems, ensuring the efficiency and reliability of energy storage.
5. **Industrial Applications:**
   - Factories and manufacturing plants use batteries for various applications. RBMS observation helps maintain reliable and efficient operations.
6. **Healthcare:**
   - Medical equipment and devices often use batteries. Remote monitoring ensures the continuous and reliable operation of critical healthcare infrastructure.
7. **Maritime:**
   - Ships and maritime vessels use batteries for auxiliary power and emergency systems. RBMS observation is crucial for monitoring and ensuring battery health.
8. **Automotive Industry:**
   - Apart from electric vehicles, conventional vehicles also use batteries for various purposes. RBMS observation can be applied in fleet management and vehicle health monitoring.
9. **Residential Energy Storage:**
   - Home energy storage systems that utilize batteries can benefit from RBMS observation to ensure efficient and reliable power supply.
10. **Remote Sensing and Monitoring:**
    - Applications in environmental monitoring, remote sensing, and research may use batteries, and RBMS observation helps in managing these systems.
11. **Smart Grids & ESS:**
    - RBMS monitoring can be integrated into smart grid systems to ensure the health and efficiency of energy storage components.
12. **Forklifts:**
    - Battery-powered forklifts can benefit from RBMS observation for monitoring and maintenance.

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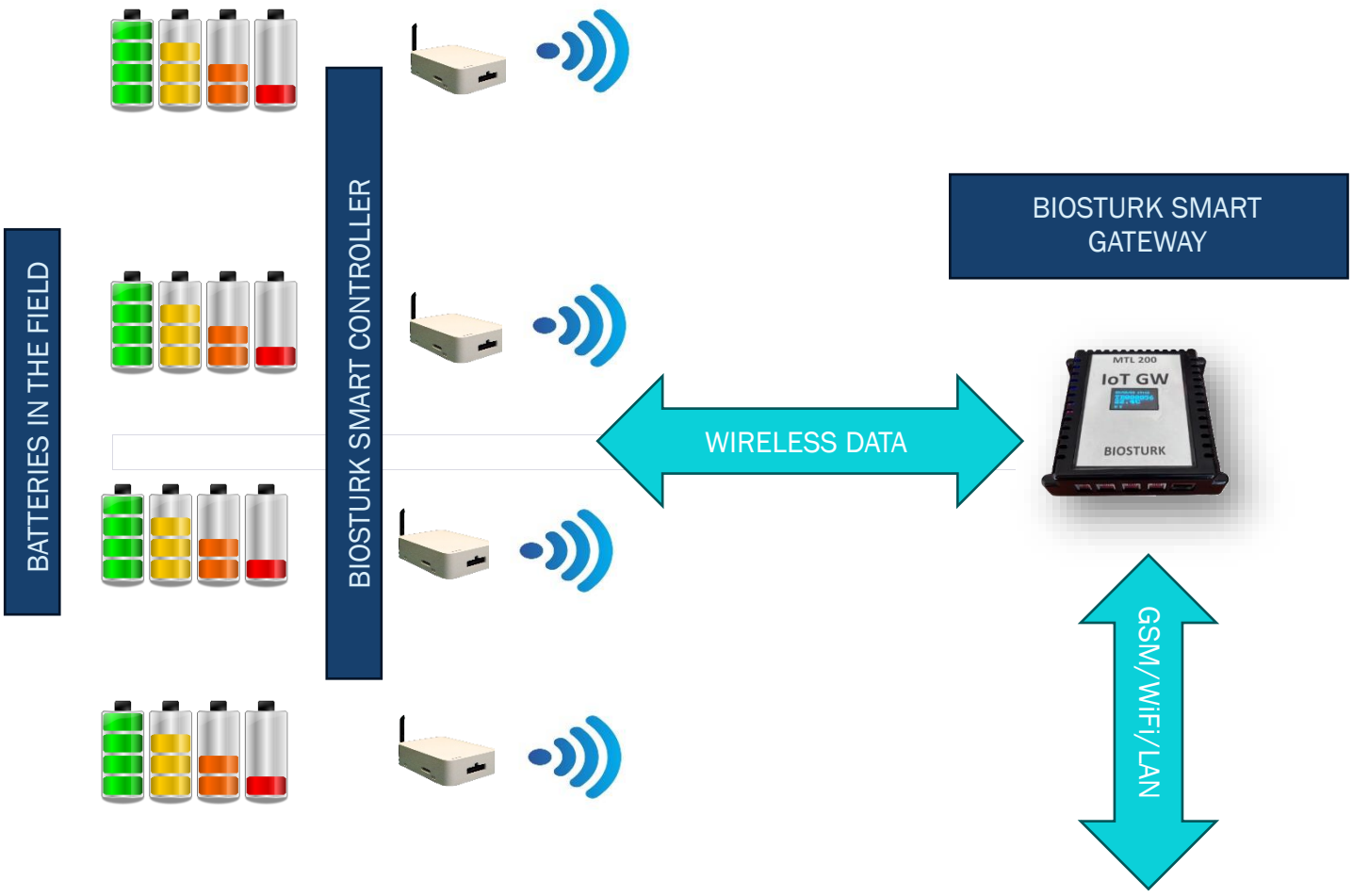
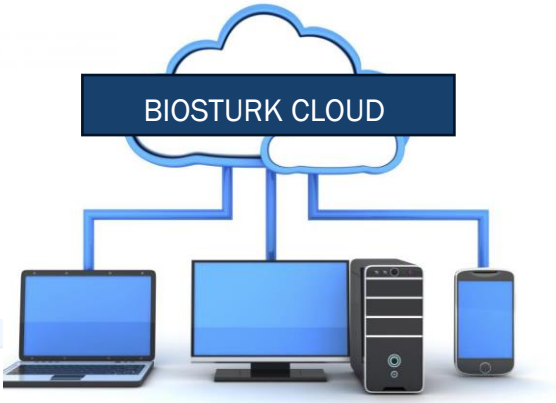
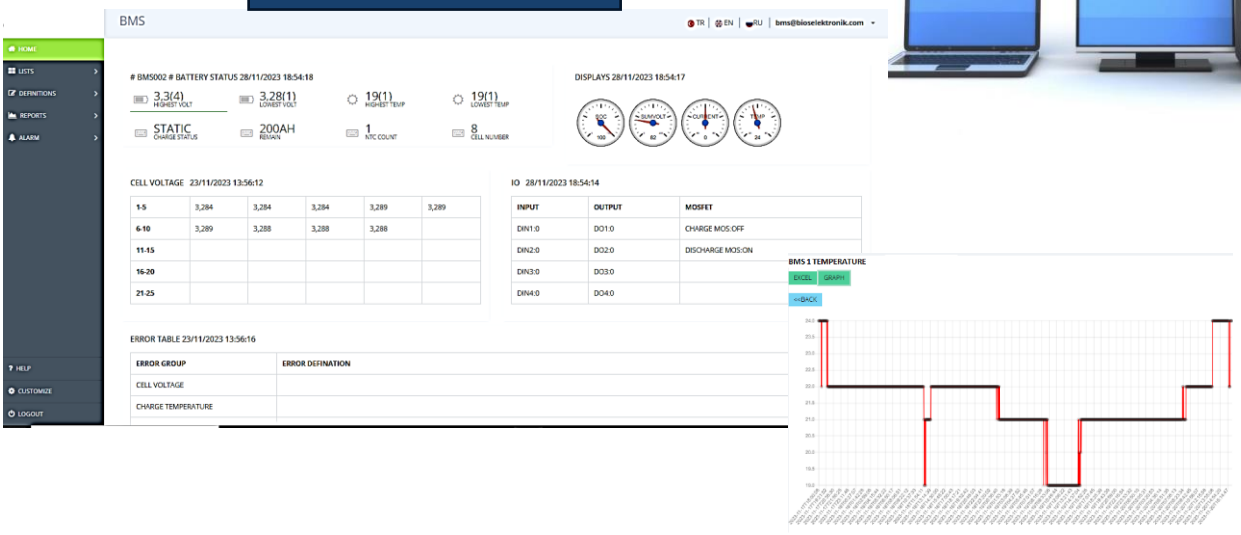




BIOSTURK BATTERY MANAGEMENT SW



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