HACKATHON

Drone Battery Management

PROBLEM DESCRIPTION

Drones are powered by LiPo batteries. Drone companies usually invest a lot of their money in purchasing batteries. Their return of investment is directly relatable with the number of times a battery is charged and discharged. It is not an easy task to track individual battery life cycles. Once the number of times a battery is charged/discharged is found, it will be easy for drone companies to calculate actual cost of revenue and optimize company performance for the long run. Develop a solution to track, count the number of times a battery is being charged/discharged. Currently companies track battery life count manually in log sheets. When the battery is drained, it needs to be charged. Before charging the company has to check and manually log the voltage of the battery, serial number of batteries, etc., Which is time consuming and can get confusing sometimes. This needs to be replaced with an easy, fast, automatic way to track battery life cycle.
Note:
Approx. battery life cycle is 200. A charging cycle is when a battery goes from being fully charged to empty and then from empty to fully charged.

Specific Constraints:

Voltage level of an individual LiPo cell is 4.2V when fully charged, 3.6V when cell is drained to its 80% capacity. Batteries are built by connecting a number of individual cells in series or parallel for different flight time requirements. For this competition use a datasheet of Tattu 16000mah 6S1P 15C battery. And find a solution to automatically track life cycles. Manually logging in the log sheet is not allowed. Log must contain date and timestamp, battery serial number, voltage before charging, charging time, voltage when charging stopped for any reason, redundant to power cut (only for charger-based solutions)