Hoof IMU

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Data Saving and Post Processing

- KST proved to not be capable of plotting the data in real-time using .csv files. As a result, BetterSerialPlotter is being used to plot data real-time, and is capable of exporting the results as a .csv file afterwards for post-processing.
- Alternatively, a Python script may be utilized for sorting data per device and exporting each to their own .csv file for individual device processing.

IMPORTANT FACTORS TO CONSIDER FOR BMS

Voltage Monitoring

Current Monitoring

Temperature Monitoring

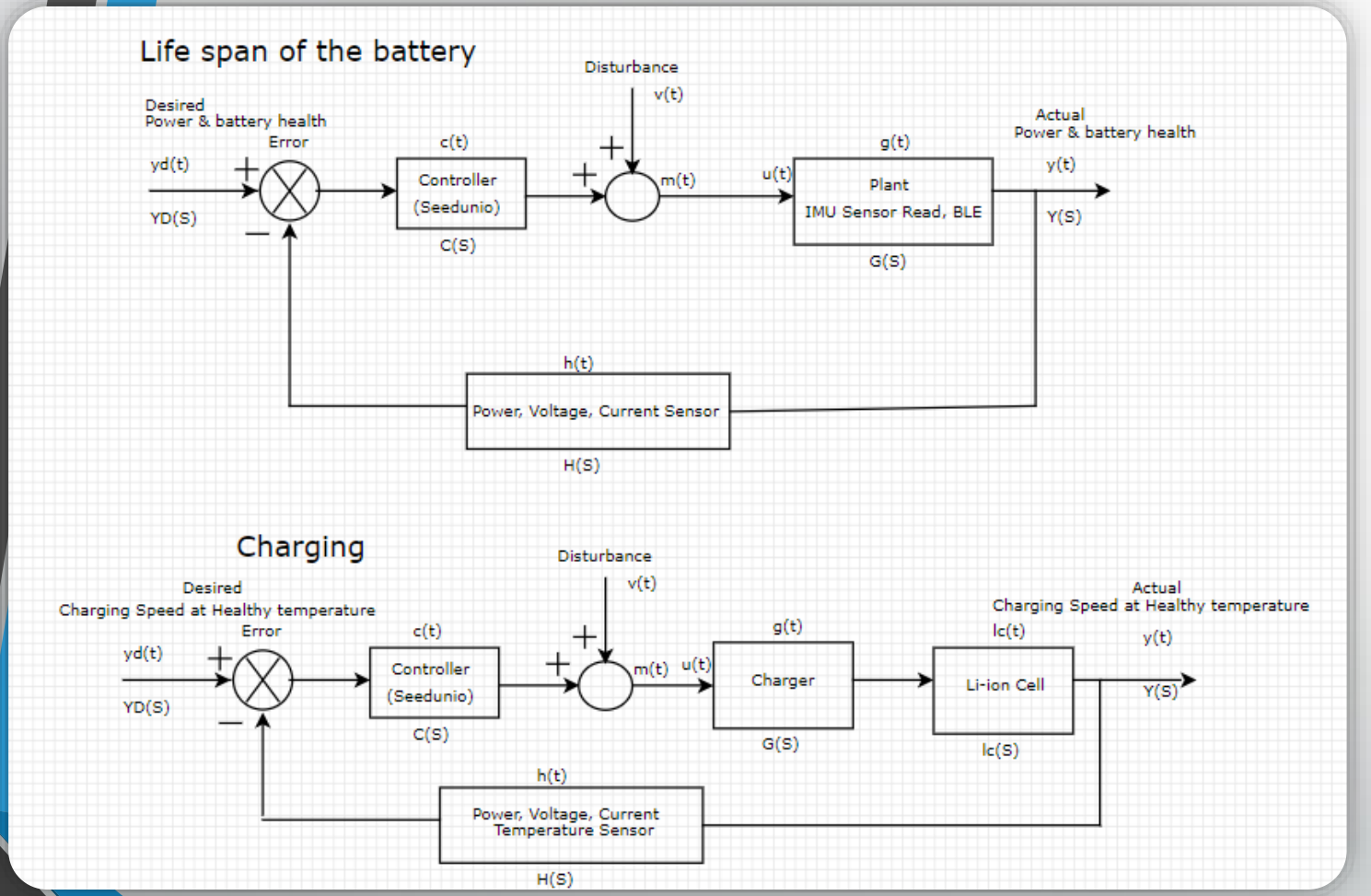
Cell Balancing

State of Charge (SOC) Estimation

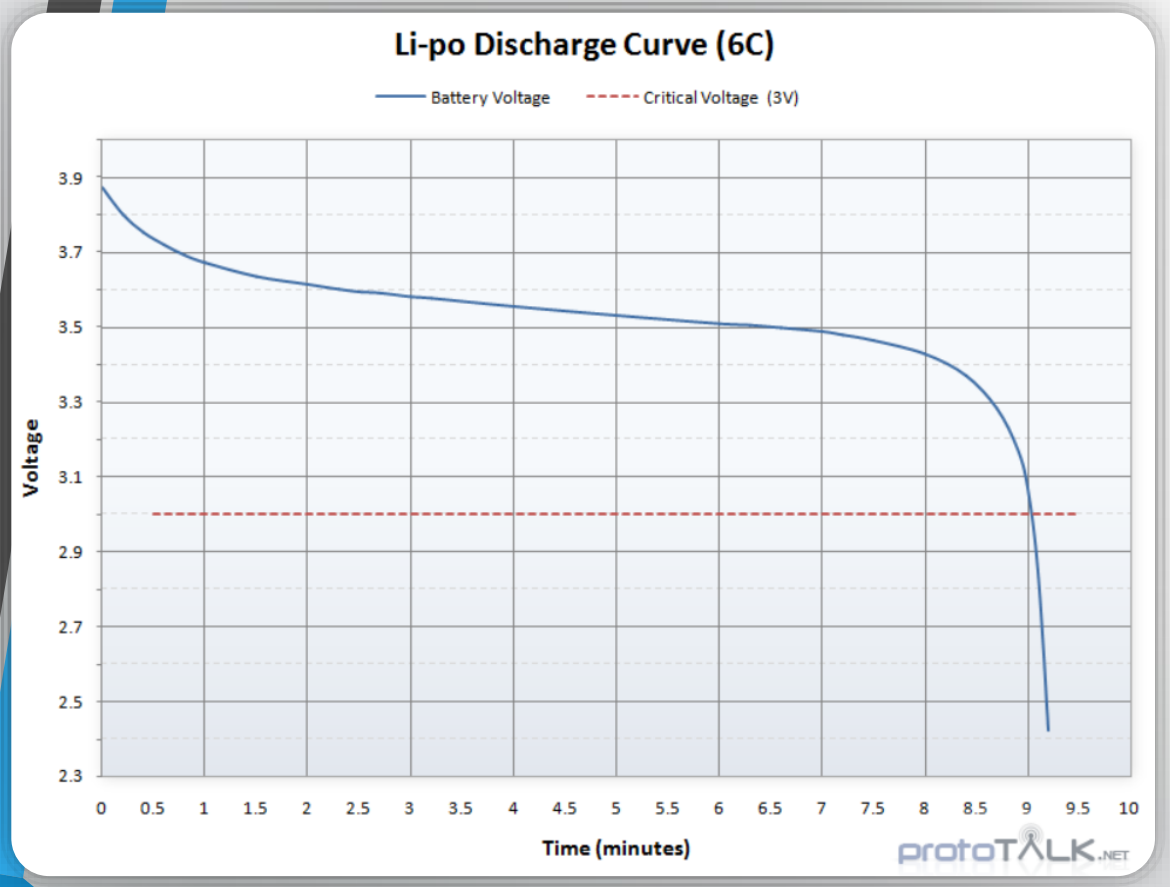
State of Health (SOH) Estimation

Overcurrent and Overvoltage Protection

Cell Protection



PROPORTIONAL INTEGRAL DERIVATIVE (PID)



BATERRY

- Voltage = 3.7 v capacity = 650mAh capacity = 1500mAh An individual LiPo cell has a nominal voltage of 3.7V. When fully charged you will see nearly 4.3V on the cell but it will quickly drop to 3.7V under normal use. When depleted, the cell will be around 3V. This means your project will need to handle various voltages if you are running directly from a cell

Hardware to for BMS

- The Battery Babysitter features a pair of Texas Instruments LiPo-management ICs: a BQ24075 battery charger and a BQ27441-G1A fuel gauge.
- INA219 High Side DC Current Sensor Breakout - 26V ±3.2A Max - STEMMA QT

Computer Vision

- By using machine learning, we're aiming to create a skeletal body over a recorded video of the horse movement
- Currently exploring options on using already build libraries and models to help us in detecting the skeleton and movements

Questions?