BMS Charging and Cutoff

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| 1N5400 | Power Diode  For reverse polarity protection, prevent backflow from battery |
| ATmega128 | Microcontroller  Monitor voltage, control MOSFETs, make charging decisions |
| Battery | Rechargeable DC source whose voltage is monitored |
| Button | Simulating user input i.e. reset, activate, manual cutoff |
| IRFZ44N | MOSFET transistor of N-channel power.  For switching charging path or load control |
| LED | Indicators  Green: normal/charged  Red: Fault/charging |
| POT-HG | Adjustable voltage divider/ potentiometer  For simulating sensor outputs like battery voltage that is fed back to adjust charging |
| TL431 | Precision Voltage Reference  For voltage comparison to determine cutoff |
| VSource | External charger/ solar panel simulation for charging battery |

**Sections**

1. Charger Input Section

VSource-Protection diode-Battery

1. BMS and Control Unit

MCU-MOSFET-Vref-POT-LED

1. Cutoff Logic

Software-Analog comparator

**Procedure**