

Power Distribution System for a CubeSat

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Objective

To design and implement a fully autonomous power generation, storage and distribution system for a CubeSat

System Architecture

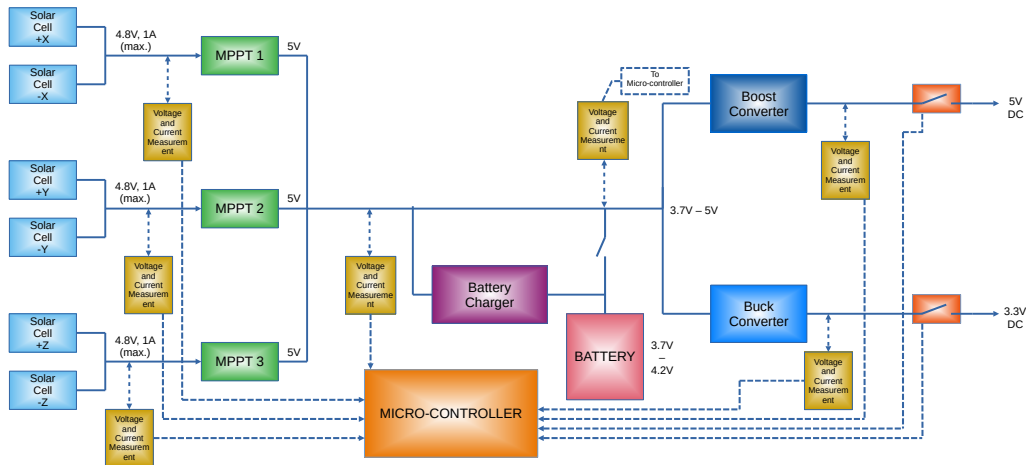


Figure 1: CubeSat EPS Architecture

Hardware Design - Buck and Boost Converters with Monitoring

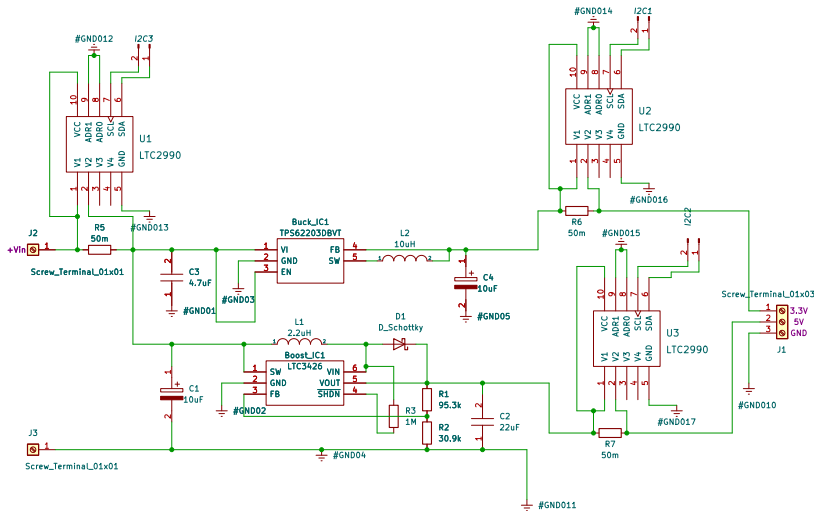


Figure 2: Circuit design of buck and boost converters with monitoring

Hardware Design - Buck and Boost Converters with Monitoring (Contd.)

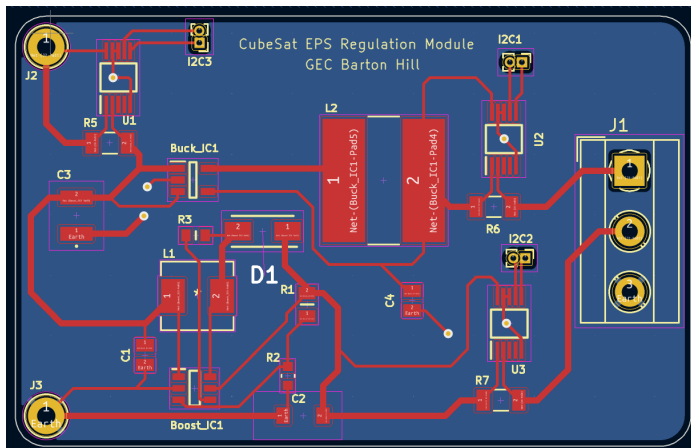


Figure 3: PCB Layout of buck and boost converters with monitoring

Hardware Design - Buck and Boost Converters with Monitoring (Contd.)

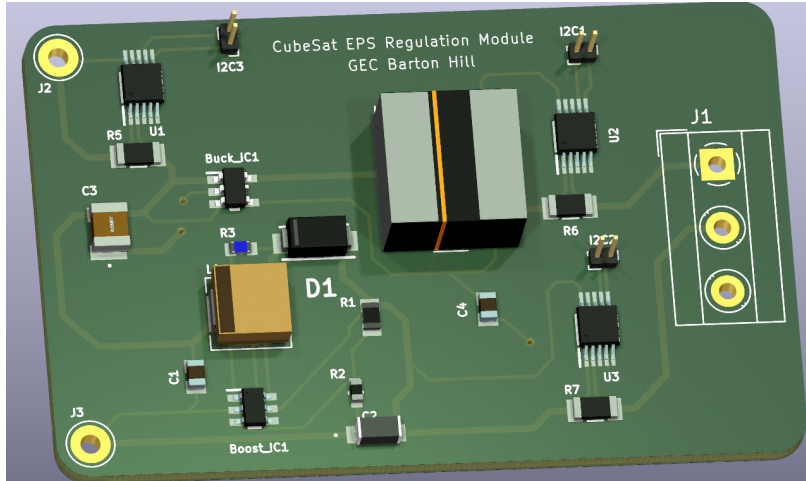


Figure 4: 3-D model of buck and boost converters with monitoring

Hardware Design - Battery Charger

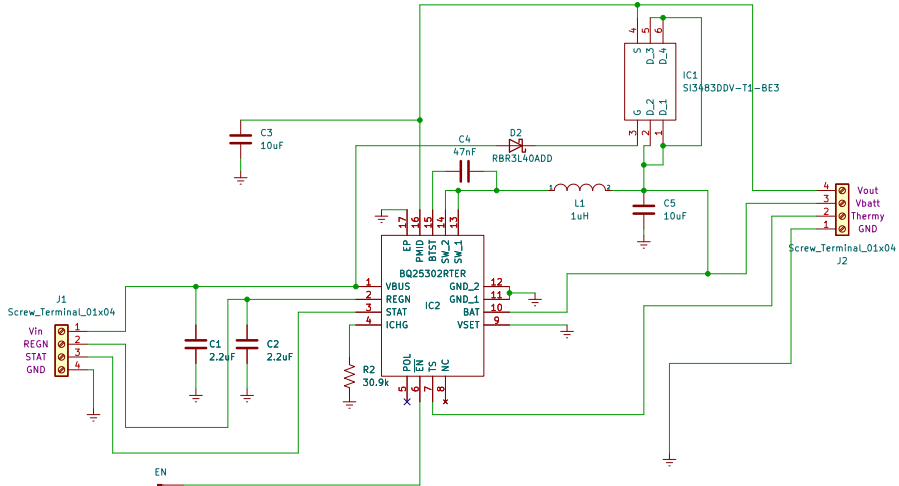


Figure 5: Circuit design of Battery Charger

Hardware Design - Battery Charger (Contd.)

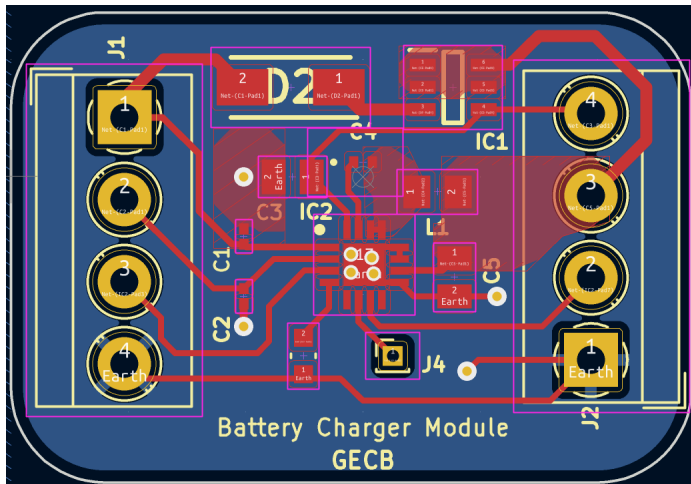


Figure 6: PCB Layout of Battery Charger

Hardware Design - Battery Charger (Contd.)

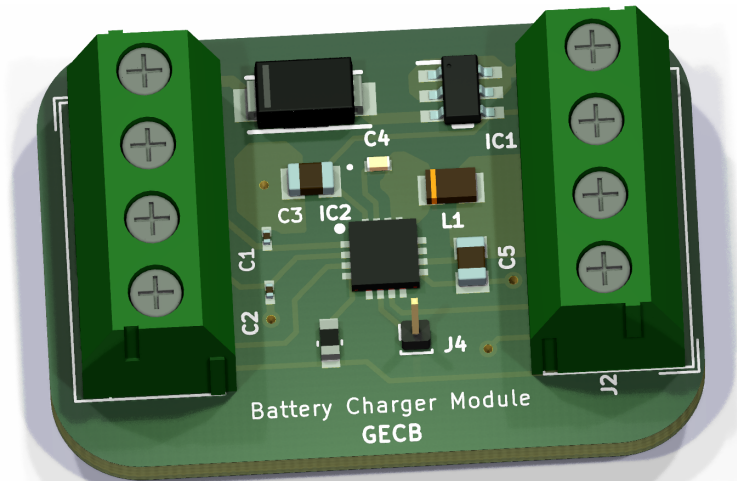


Figure 7: 3-D model of Battery Charger

Hardware Design - MPPT

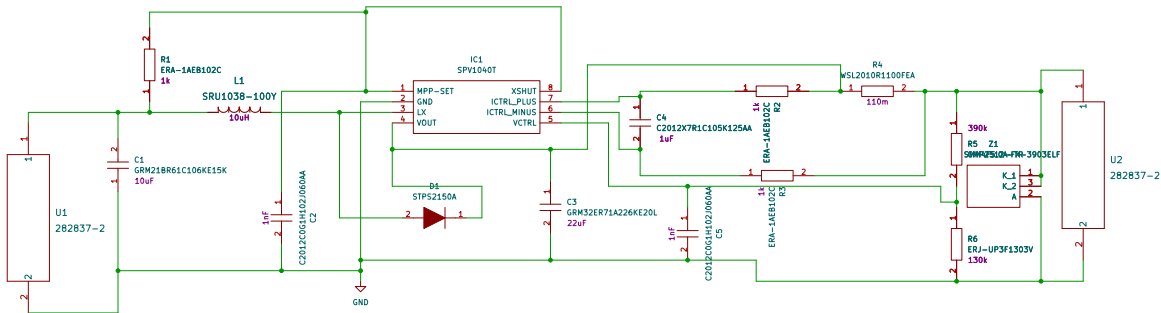


Figure 8: Circuit design of MPPT

Hardware Design - MPPT (Contd.)

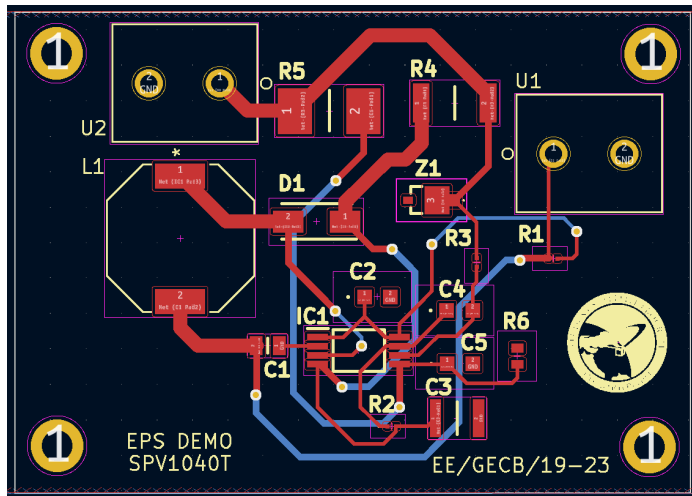


Figure 9: PCB Layout of MPPT

Hardware Design - MPPT (Contd.)

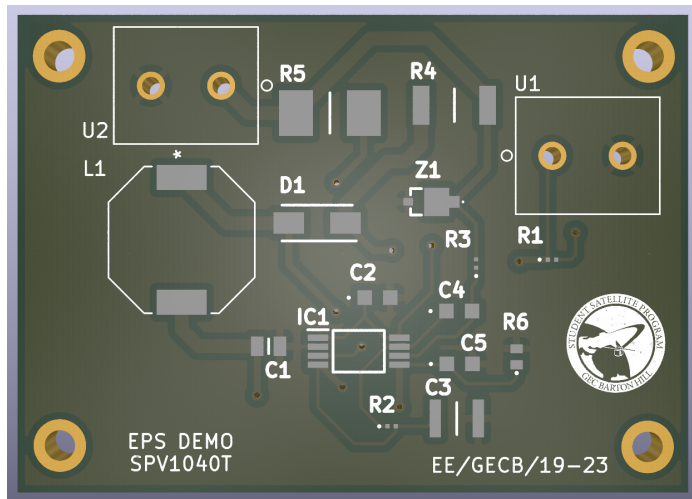


Figure 10: 3-D model of MPPT

Hardware Design - Protection

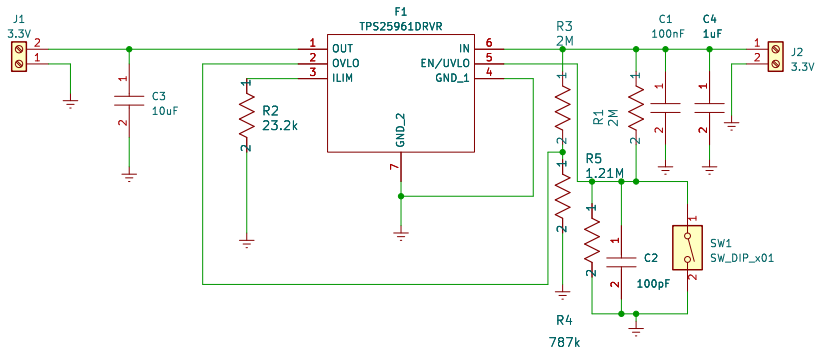


Figure 11: Circuit design for protection

Hardware Design - Protection (Contd.)

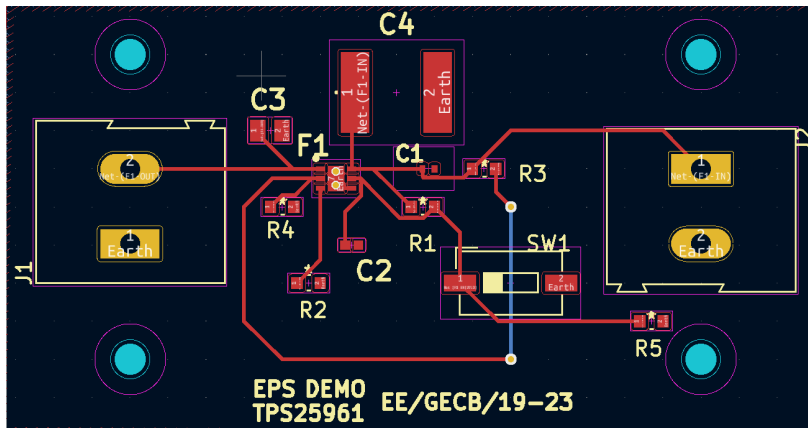


Figure 12: PCB Layout of protection circuit

Hardware Design - Protection (Contd.)

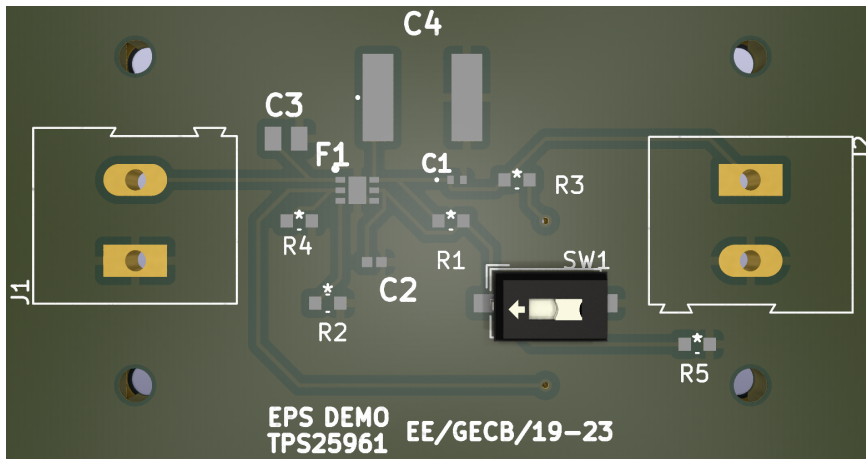


Figure 13: 3-D model of protection circuit

Project Timeline

Activity	Oct week 3-4	Nov week 1-2	Nov week 3-4	Dec week 1-2	Dec week 3-4
Literature Review					
Hardware Design					
Report Writing					
Component selection					
Component Procurement					

References

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Thank You