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Unmanned Aerial System Design for Civil Engineering Operations – A VIP Study

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Presenters

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Unmanned Aerial System Design for Civil Engineering Operations – A Case Study

The objective of the project is to design and build a modular Unmanned Aerial System (UAS) that meets the specifications set forth by United Consulting – a local civil engineering company. These specifications are achieved through three unique missions. In each mission, data is collected using different methods. These missions include land surveying, bridge structure inspection and manhole probing. The key requirements of the drone are to maintain a minimum flight time of 30 minutes and the ability to receive and transmit telemetry, photographic and video data from a distance of up to one mile from the ground station. To ensure the drone meets these specifications, extensive research pertaining to the selection of electronic components is performed to ensure safety and efficiency of the drone's many sub-systems. In addition to choosing compatible components, 3D modeling is completed to meet the modularity United Consulting is looking for in the different missions that would be completed in the field. The overall goal for the Fall 2022 semester is to create a working prototype that achieves the mission goals set forth by United Consulting.