**Weather Satellite Design Document**

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**Overview**: This design document outlines the overview of the weather satellite and the functions related to it. The weather satellite is to collect weather data and report its findings. Making as many processes and functions to be automated for the satellite is important to maintain its efficiency and improve it. Thorough testing needs to be done to prevent any problems arising when the satellite is in orbit and be able to push updates to the satellite.

**Context**: The satellite will collect weather data that includes the following: temperature, pressure, humidity, wind speeds, wind direction, clouds, using on board weather collection instruments. The collection of the weather data will be done using the following: Visible light imager, infrared sounder, cameras, radiometers (water vapor, microwave), and scatterometers. This data will transmit the following data automatically and autonomously report any errors present.

**Goals**

**Operational Efficiency**: Instruments and software onboard satellite do not consume a large portion of the satellite battery storage and power consumption (<60%).

**Accuracy**: Achieve 99%> instrument accuracy and transmissions successful.

**Scalability**: Ensure the system can successfully be able to receive updates.

**Success Metrics**: Track metrics such as the number of errors that present themselves, the amount of time an instrument becomes faulty.

**Milestones:**

**System Design**:

No Set Date

Develop high-level system design

**Prototype Development**:

No Set Date

Build a prototype software in an IDE to verify software successfully functions and errors present.

**Testing**:

No Set Date

Conduct use case testing, integration testing, and malfunction testing.

**Deployment**:

No Set Date

Deploy the software to a satellite in orbit.

**Maintenance and Support**:

Current

Provide ongoing support such as access to developers of the software system on standby and routine updates.