Contribution ID: **466** Type: **Poster Presentation**

The development of the atmospheric monitoring system for a balloon-borne system

Atmospheric monitoring systems play a crucial role in tracking weather conditions and assessing air quality, which is essential for both climate research and public health. While ground-based monitoring systems provide valuable localized data, they are limited in their ability to capture measurements at higher altitudes. Balloon-borne systems offer a solution to this gap, enabling the monitoring of atmospheric conditions at high altitudes, which is vital for understanding global climate patterns, air quality, and upper atmospheric phenomena.

The proposed balloon-borne atmospheric monitoring system aims to overcome the limitations of ground-based monitoring systems, such as Automatic Weather Stations, by providing a cost-effective method for collecting atmospheric data at various vertical levels. In addition to monitoring atmospheric conditions, the system will also track the position and velocity of unmanned vehicles, such as rockets or drones. The system consists of sensors, a Global Positioning System (GPS) for determining the system's position in the atmosphere, and a radio transmitter for real-time data transmission.

The collected data will be transmitted to the nearest ground base station, which will then relay the data globally via the Global System for Mobile Communications (GSM). To ensure compliance with safety regulations, the payload will be designed to weigh no more than 2 kg. The system will be built to withstand the harsh environmental conditions encountered during the balloon's flight, including rapid changes in temperature, pressure, and humidity.

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None

Consent on use of personal information: Abstract Submission

Yes, I ACCEPT

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Session Classification: Poster Session

Track Classification: Track F - Applied Physics