

A Miniature Upward-looking Radiometer for Balloon and Unmanned Aerial Vehicle (UAV) Use

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A miniature radiometer has been developed for use on balloons, UAVs, and other light platforms. The radiometer scans continuously at the elevation angle of the sun (almucantar scans) and measures red, green, and blue light simultaneously about every half degree of rotation. It has the dynamic range to measure both the direct sun and scattered light in the sky. It can compensate in real time for a tilting platform. The instrument with a data system weighs about 300 grams. Doing vertical profiles will allow one to find the altitude of aerosol or cloud layers. A significant advantage of a vertical profile is that the sensitivity can be normalized to the sunlight at the top of the profile and this reduces the need for absolute calibration.

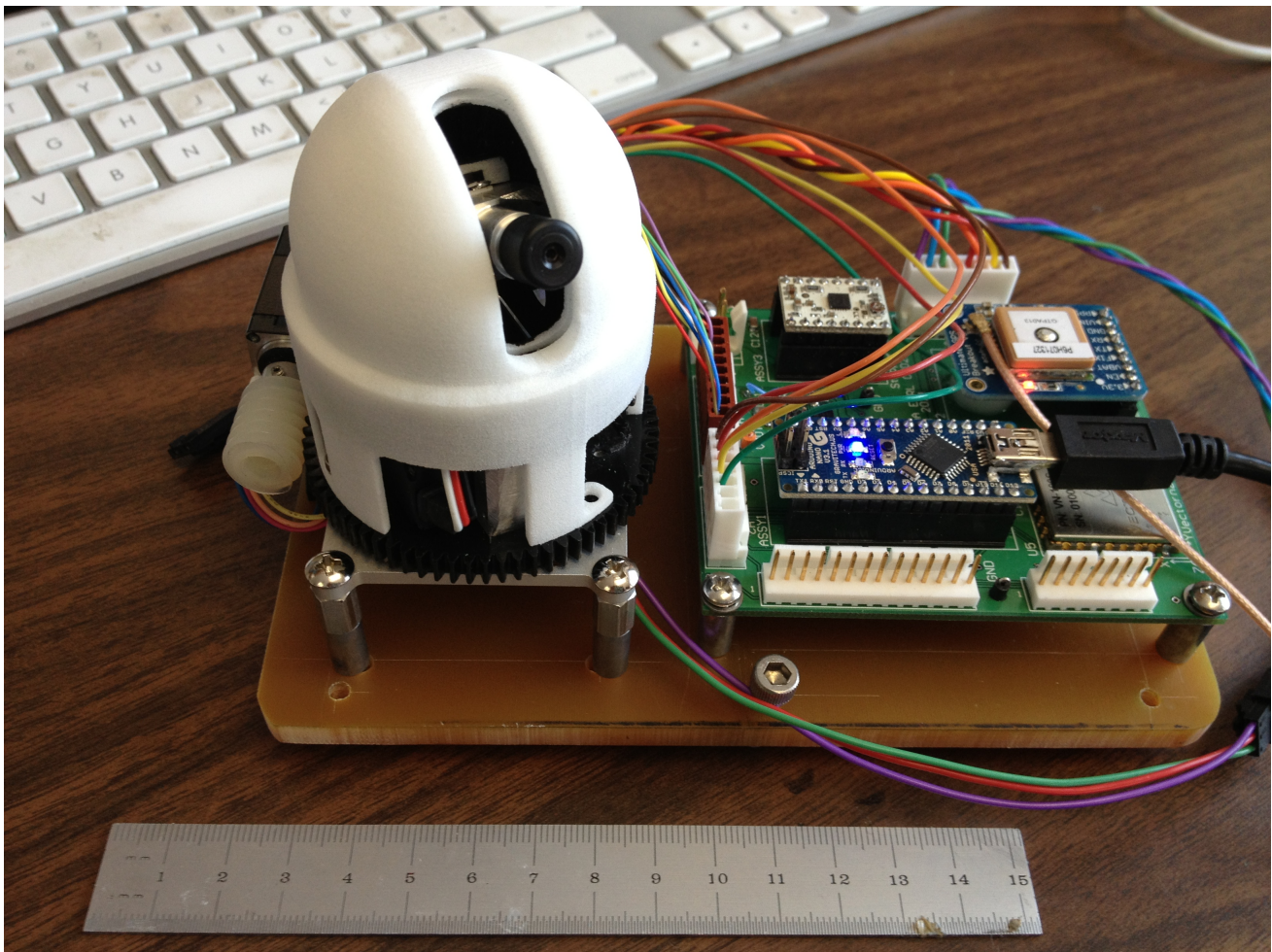


Figure 1. A radiometer.