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For Disaster Resilience: Low-Cost Weather Station

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Despite the prudent importance of monitoring weather and climatic trends, the cost of setting up weather monitoring experiments and devices prove to be costly and even with available costly solutions, they are without standardization rendering the data collected from them unusable for scientific enquiries or examinations. The objective of the work described in this paper is detail the activities done to create mass producible weather monitoring station with low starting and maintenance cost that is capable of generating scientifically usable data of good precision and accuracy and equip weather scientist, world over, with such technology to fight against hydro-meteorological disasters. To achieve these objectives a prototype of embedded micro processor system was developed and iteratively improving it at field tests for thermal capabilities, power consumption, data delivery systems and processing modes. The improved device was setup according to the guidelines of World Meteorological Organization and then generated data was compared to standard meteorological station for data validation. The data fit was performed by time-stamp comparison and functional compensation of the biases and non-linearity. The developed prototype was designed in to a Printed Circuit Board for commercial production into consumer off the shelf form factor.

Promotional text

Low cost weather station is design and developed in Nepal for the measurement of temperature, realtive humidity, air pressure, wind direction, wind speed, light intensity and precipitation. These parameters are very essential for observing any types of disaster on earth.

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