

PROJECT REPORT ON
“DIGITAL AUTO WEATHER STATION USING
ZIGBEE SENSOR NETWORK”

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ABSTRACT

A Digital automatic weather station (DAWS) is defined as a “meteorological station at which observations are made and transmitted automatically. At DAWS, the instrument measurements are read out or received by a central data-acquisition unit. The collected data from the autonomous measuring devices can be processed locally at the DAWS or elsewhere, for example, at the central processor of the network. Automatic weather stations may be designed as an integrated concept of various measuring devices in combination with the data-acquisition and processing units. Such a combined system of instruments, interfaces and processing and transmission units is usually called an automated weather observing system (AWOS) or automated surface observing system (ASOS). It has become common practice to refer to such a system as an AWS, although it is not a “station” fully in line with the stated definition. Nevertheless, throughout this chapter, an AWS may refer to just such a system.

The scale of weather monitoring is limited by the cost of the automatic weather stations (AWS), which is mainly the cost of high precision instruments and long-distance wireless equipments. We propose a wireless sensor network (WSN) based AWS, which takes advantage of the low-cost, real-time and infrastructure-free characteristics of WSN. We can therefore extend the scale of weather monitoring without increasing the number of telecommunication equipments. This WSN-based AWS is able to cover a plane and gather multiple sets of weather measurements in real-time at a better data resolution.