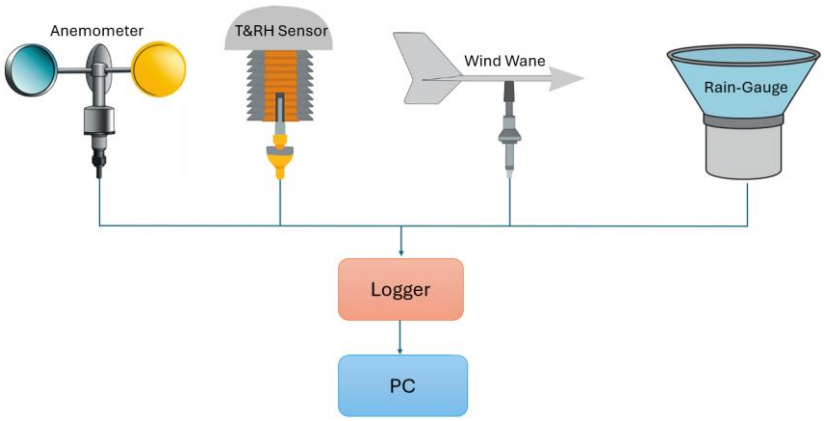
# Automatic Weather Station (Dynalab Weathertech)

*A Compact System for Continuous, Real-Time Meteorological Monitoring*

## INTRODUCTION:

Automatic Weather Stations (AWS) are vital tools for real-time atmospheric monitoring. They provide continuous data on key weather parameters such as wind speed, wind direction, temperature, and relative humidity (RH). These stations are widely deployed for meteorological research, climate monitoring, environmental assessments, and forecasting.

## DIAGRAM:




## OBJECTIVES:

- Meteorological and climate research
- Weather forecasting support
- Environmental monitoring & impact assessment
- Data for atmospheric modeling and simulations
- Agricultural and aviation applications

## MEASURED PARAMETERS & OUTPUTS:

- Wind Speed : 0 – 50 m/s – TTL pulse output
- Air Temperature : −40°C to +60°C – RTD output (PT1000)
- Relative Humidity : 0% – 100% – Capacitive analog output
- Wind Direction : 0° – 360° – Potentiometric analog output
- Rainfall : 0.5 mm - Rainfall per pulse.

## SENSORS, SPECIFICATIONS & WORKING PRINCIPLE:

| Sensor | Specification | Working Principle |
|---|---|---|
| Wind Speed Sensor | 3-Cup Anemometer | Optoelectronics generates pulses based on chopper interruptions |
| Temperature Sensor | RTD (PT1000) | Senses temperature based on resistance change of RTD |
| Humidity Sensor | Solid-State Capacitive | Thin-film capacitive sensor changes capacitance with moisture content |
| Wind Direction Sensor | Potentiometric Sensor | Vane changes potentiometric resistance based on wind direction |
| Rain Gauge | Tipping Bucket | Each tip on either side activates reed switch counting 0.5 mm of rainfall |

## KEY FEATURES:

- Real-time, continuous measurements
- Highly sensitive and low-threshold sensors
- Weatherproof shielded design
- Long-term field deployment capability
- Data accuracy assured with standard protocols

*Principal Investigator: Dr. Sunil M. Sonbawne, Sc-E*
*Contact: sunil@tropmet.res.in*