

# Real-time Climate Monitoring & Forecasting Solution for a Mountain Trek Organizer

## Introduction

The client is a mountain trek organizer company that often plans hikes and tours of snow-capped peaks. They also own multiple resorts, bread and breakfast inns, and camps for lodging hikers along the multi-day mountain trail.

## Need

The client places paramount importance on safeguarding the well-being of their customers and, therefore, considers it imperative to ensure that local climatic conditions along the hiking route are constantly monitored. To accomplish this, they rely on a network of electronic sensors placed on the ground which continuously stream back data on various climate parameters such as wind speed, air pressure, humidity, temperature, precipitation, and sunlight conditions. This data is then sent to a central hub which updates a real-time dashboard and triggers alerts if unsafe conditions are detected on the trail. In the event of an emergency, this system can also be used to launch a rescue mission to ensure the safety of the hikers.

## Solution

Contata comprehensively grasped the client's issue and devised a cutting-edge stream analytics hub that assimilates incoming data within a sliding time window of the preceding five minutes. These aggregates are then seamlessly transmitted to a user-friendly Power BI dashboard accessible to both hikers and client station staff. Additionally, the Power BI report generates alerts that are rapidly transmitted through Azure communication services, facilitating notifications via IVRS phone calls, email, and SMS, based on the severity of the alert. Moreover, Contata also created an advanced forecasting model that efficiently predicts future weather conditions by analyzing local climate data. This novel system provides accurate forecasts for the upcoming few hours, aiding in ensuring the safety of the hikers and preventing any untoward incidents.

## Advantage

### Faster and Reliable

Sensor reading data communication via Azure streams is often faster and more reliable than manually recording and transmitting data by the weatherman. Automated alerts based on algorithms also provide quicker responses and warning to all hikers and staff on the trail.

### 8% Reduction

Operational costs were noticed by freeing up weatherman's time, the time of staff which was deployed to share warnings and alerts for bad conditions, and as well as many other operational areas which were now better informed and prepared for climate changes.

## Industry

Mountaineering

Recreation

## Our Services

Data Modelling

Stream Analytics

Dashboards

Forecasting

## Technology Stack

Power BI

Azure Communication Services

Azure Alerts

Azure Streaming Analytics