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Muhammad Asad

Buraq Integrated Solutions



Mobile based Early Warning & Response



BIS - Solutions & Specialties Established: 2000

Weather

- Automatic Weather Stations
- Automatic Rain Guage
- Agri Weather Stations
- Portable Weather Stations
- Road Map Information Systems
- Aviation Weather Stations



Energy

- Energy Monitoring Systems
- Solar Resource Assessment
- Wind Resource Assessment



Soil Monitoring

- Time Domain Reflectometer
- Soil Moisture & Temperature
- Soil Heat Flux
- Soil Nutrients

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- · Flood Early Warning
- Landslide Warning





Water

- Surface Water Monitoring
- · Ground Water Monitoring
- · Flood Early Warning Systems
- River Discharge Systems
- Dams & Barrages
- Water Quality





- Indoor Air Quality
- · Outdoor Air Quality
- · Gas Flux & Eddy Covariance



- Smart Drip Irrigation
- IOT Based Smart Sensors
- Green Houses Automation
- Auto Steering & GNSS Land Leveling

Infrastructure

- Dams & Barrage Monitoring
- Structure Monitoring

















Project

Mobile based Early Warning & Response

According to the mapping done by a regional NGO, the vulnerable communities constitute 45% of the total population (Approx 0.5Million) in Gilgit-Baltistan and Chitral regions. They are residing in the fault lines of multi-hazards including flood, landslide & snow avalanche.

Frequency of multi-hazards has increased 400 times more than the previous decade.

Challenges:

- Terrestrial constraints
- Lack of internet connectivity
- Absence of civic services/public goods and government attention
- The vulnerability & risk to disasters has escalated to manifolds.
- The preparedness and coping ability of the communities are inadequate
- The organization, volunteers and response agencies are facing challenges in getting a harmonized communication system to monitor, generate, and disseminate the <u>Alert/warning messages</u> to the at risk communities and stakeholders as anticipatory action for evacuation through & response.



Establishment of information flow mechanism from field to control room to the community





Scope

- 3 Automatic Weather Stations
- 10 Weather Monitoring Posts
- Landslide Monitoring Station
- Integration of data of existing Early Warning Systems
- Information Dissemination:
 Portal: SMS, IVR
 App: Alert Notifications
- Capacity Building of Stakeholders:
 - Community
 - Caretakers
 - Disaster Management Teams
 - Humanitarian Groups







Equipment Automatic Weather Station

Data Logger with 4G Cellular Modem and Antenna

Weather Station Sensors:

- i. Wind Speed Sensor
- ii. Wind Direction Sensor
- iii. Ambient Temperature, Relative Humidity
- iv. Barometric Pressure Sensor
- v. Rain Gauge
- vi. Pyranometer
- vii.Snow Sensor
- Solar Panel & Battery







Equipment Automatic Weather Monitoring Posts

Data Logger with 4G Cellular Modem

- Weather Station Sensors:
- i. Wind Speed Sensor
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- v. Rain Gauge
- vi. Snow Sensor
- 7" HMI TouchscreenSolar Panel & Battery















Data Collection & Transmission

- Built-in Memory
- PTA Registered 4G Cellular devices
- Once 4G network is available, locally stored data will be transmitted to cloud-based server
- Cloud Server
- Database Management System





Interfaces



Web Interface

- Centralized Control Room
- Sub Control Rooms
- Sites Management & Monitoring
- Reporting

Mobile Application

- Sites Data Monitoring
- Sites Management
- Alerts Confirmation
- Users Notifications

Customizable Solution

- Notifications
 Management
- Restricted and Controlled Access
- Users Profiles
 Management









Information Dissemination

- A Portal is developed for:
 - Central Control Regional Control Rooms for Alerts Generation Stakeholders Corner for Alerts View Community View
- Tabular & Graphical Data Representation Forms
- In case of extreme weather conditions, Control Room can push the information, notifications and alerts
- Information can be sent at SMS, IVR, or Alerts via Apps







Data Views





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Thank you!



THE HUMANITARIAN CONNECTIVITY CHARTER.