H13N-1191 WeatherChimes

📅 Monday, 9 December 2024

🕐 13:40 - 17:30

📍 *Hall B-C (Poster Hall) (Convention Center)*

Abstract

WeatherChimes is an open-source Arduino-programmable, low-cost hardware and software suite that enables real-time access to in-situ environmental sensor data. This has been implemented using WiFi and 4G internet. It also provides applications that translate the data into alternative sensory signals (sound, music, digital art) that enables new insight into natural phenomena and new modalities to monitor and explore these data spaces. Since AGU 2023, we have integrated a new solar charging circuit, rainfall, water temperature, a piezometer to measure water pressure, and a Dissolved Oxygen probe. Additionally, each Chime can measure air temperature and humidity, solar luminosity, stream depth, and temperature levels in water, as well as the option to measure soil moisture and soil temperature. This data is logged over user-specified intervals to an SD card and MongoDB, an online cloud database. The Chime is intended to last a minimum of 81 days at 15-minute sample periods and now features an upgraded solar panel to better support the numerous sensors in low-sunlight conditions. In the Summer of 2024, these devices were installed in southeast Alaska (Sitka, Hoonah, and Klawock) in collaboration with Alaska Youth Stewards and indigenous communities to facilitate research on climate, landslides, hill slope hydrology, yellow cedar decline, and stream health monitoring.

First Author

Sarvesh Thiruppathi Ahila
Oregon State University

Authors

Casey Jacklyn
Oregon State University

G

Paul Gasper

Oregon State University

R

William Richards

Oregon State University

U

Chet Udell

Oregon State University

S

John Steven Selker

Oregon State University

View Related