The FRANKLIN
The Finer Replacement to A Nonideal Kite Lightning Influx Node

Keys on Kites
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System Design

- The Red Pitaya is the brains of the operation
- The NPLL multiplies the GPS clock to provide the sample clock
- The signal conditioning matches the impedance between the antenna and the ADC
- The modem uploads all sample data to AWS

Purpose of Project

- Approximately 40% of wildfires are caused by lightning
- There is very little data about lightning’s E-field emissions
- The FRANKLIN detects and triangulates lightning strikes using synchronous nodes
- The FRANKLIN is to be used to improve response time for firefighters and provide valuable insight to climate scientists

Project Requirements

- An aerial capable of receiving electromagnetic waves in the 1kHz to 10 MHz range
- All nodes synchronously sample for a full second at 125 MHz, aligned to a 10MHz GPS signal
- Each node cost less than $1000
- Self-powered for 24 hours

System Overview

Lightning strikes near set of nodes
Strike is sampled by the nodes
Strike is triangulated and published

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