Continued surveillance of the environment is crucial in helping minimize the damages caused by the ever more frequent natural disasters. Wildfires will be the focus of this project. The detection of wildfires remains a challenge for environmental regulators – the majority of contemporary techniques are only capable of spotting the disaster after it has grown to a considerable size. Past works have applied sensor networks to tackle this issue, however the lack of range caused by both the radio system and the network design made it impractical beyond small areas. This project implements a network protocol with a mesh topology, allowing for indefinite network size. The project also brings in new radio technologies to increase the peer-to-peer range. Note that the focus of the project is in the protocol and the framework; its current configuration to work against wildfires can be considered a sample usage of the proposed framework. The protocol and hardware implemented in this project demonstrates the feasibility of sensor networks in large-scale environmental surveillance tasks. The framework proposed here re-invigorates the prospect of an IoT solution, providing enhancements over contemporary techniques. Ultimately, this development serves as a step towards a more effective solution in environmental monitoring and to minimize the harmful effects of natural disasters.