Home Disaster Monitor by Daniel A Kenney 12/29/2020

Self Contained Sensor for Monitoring Conditions After A Homeowner Evacuates

This device is a self-contained stand-alone monitor for notifiying an evacuee if their home has become uninhabitable while they are away. Its communication channel is SMS text messages. It is capable of sensing different disasters through an suite of sensors.

The disaster conditions anticipated and the sensors used are:

- Storm surge or mudslide, GPS receiver to detection sudden changes in the location of the monitor
- Flooding, water detector to detect not only the presence of water, but also its depth and the length of time the home is flooded
- Home destruction by fire, high temperature sensor which only activates just prior to the monitor's destruction
- Toxic gas because of rail, pipeline or refinery accident, several gas detectors which detect a variety of hazardous gases are present in monitor
- Nuclear accident, geiger counter which ignores background radiation but can detect hazardous radiation levels

Development timeline:

- idea conception - June 2019
- begin proof of concept design - Oct 2019
- completed proof of concept - Sept 2020
- begin prototype design - TBD

Prior Art:

youTube videos which led to my concept

Andreas Spiess # , development of a gieger counter that could signal high radiation levels to the user by way of a wifi to sms connection thereby allowing the user to seek shelter

bitluni #, development of a smoke detector that could signal a workshop fire through a direct sms connection

Great Scott "", development of a gps theft prevention system which signals its location through a direct sms connection

The device is comprised of the following:

1. A plurality of sensors to monitor the conditions around the device
2. A direct SMS communication link to input settings and signal the user
3. Control circuitry to monitor the sensors, determine if sensor readings have reached alaram levels, signal the user, and control power

4 An battery backup

The device will not consist of the following:

5 Wireless sensors
6 Security sensors which are not related to disaster conditions
7 A distributed architecture

The device's methods and settings are comprised of the following:

Upon activation,

initialize device
detect and record device faults
wait until sensors and communication channels are operational
signal the operational status of the monitor with a text message

After activation,

check the SMS link for the command establishing the user's cell phone #
sample the sensors in real time
detect conditions of habitability
signal the user based of the conditions around the device
check the SMS link for commands to output status of device

Settings,

User's cell phone number