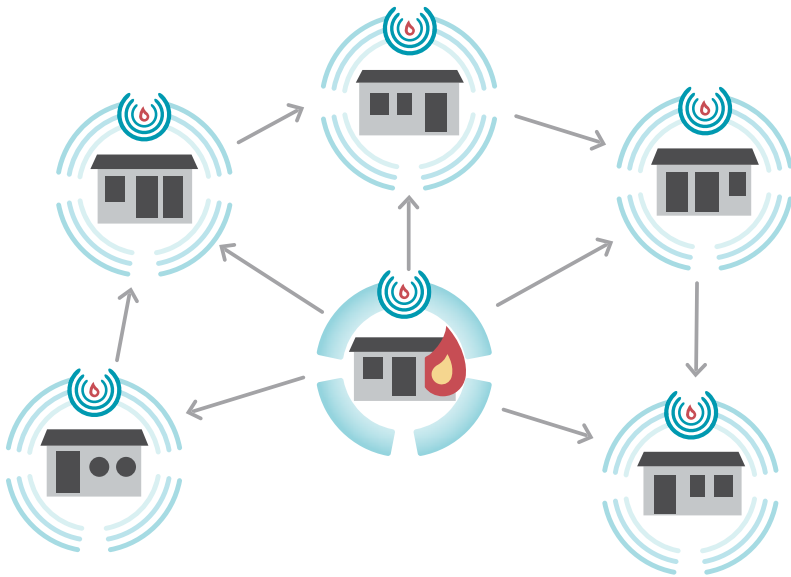# LUMKANI
PROTECTING AGAINST FIRES

Informal settlements or urban slums are areas categorised by high population and structural density, low incomes and little to no infrastructure. A significant challenge facing people living in these spaces is the incidence and spread of fires. In a single blaze, hundreds and up to tens of thousands of people can be displaced with the unfortunate and avoidable loss of life. The direct cost of shack fires to governments, communities and families runs into the hundreds of millions of rands each year in South Africa alone, let alone the indirect costs to society which entrenches cycles of poverty.

Lumkani's vision is to mitigate the loss of life and property associated with the spread of shack fires in South Africa, Africa and across the globe. We will realise this vision through our integrated early warning system.

www.lumkani.com

LUMKANI

"This device will play a big role, especially during the summer time."

– Lisakhanya Biko

How our system works:

We use innovative heat detection technology instead of smoke detection, which is not suitable given the heating, lighting and cooking methods that are used in low-income households. Using rate-of-rise of temperature technology, our devices can accurately measure the incidence of hazardous fires, triggering an alarm inside the home to alert the family of the danger before the fire becomes unmanageable. Our devices are networked using radio frequency (RF) transmission, which connects neighboring detectors within a 60 metre radius of each other. In the event of a fire, devices within this range will sound their alarms creating a community-wide response to the danger. Given high structural and population densities, a community-wide alert buys valuable time for communities to effectively respond to rapidly spreading fires. Through **rapid detection** and **networked alert**, we hope to enable better coordinated action among community members to deal with fires.

We have taken our system even further. We have developed and rolled out smart centralised devices which gather information about the in-home detector mesh network. These devices constantly check the health of the system and in the event of fire, store GPS coordinates and simultaneously send text-message warnings to members of the affected community. Our next phase is to send, in real-time, the coordinates of fires to the municipality's emergency response personnel.

The Lumkani network is a low cost, off-the-shelf, proactive early warning system, designed for informal settlement environments. This increases security for both the individual and the wider community and plans to build a bridge between the providers of emergency services and affected areas to further mitigate disaster risk.

Since November 2014, Lumkani has distributed devices to 9000 households in total. We are already detecting fires and creating the value we envisioned, all the while collecting insightful data around the technology, the fire challenge and the human experience.

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