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00:00:02,000 --> 00:00:06,000

You never know when a disaster earthquake or some other event will happen.

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00:00:06,000 --> 00:00:10,000

The faster you find somebody that means the faster they can be rescued.

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00:00:10,000 --> 00:00:14,000

In the search and rescue world they speak of the Golden Hour.

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00:00:14,000 --> 00:00:16,000

If you find someone within an hour of the incident occurring,

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00:00:16,000 --> 00:00:23,000

the odds of survival are much higher.

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00:00:23,000 --> 00:00:28,000

FINDER is a radar called Finding Individuals for Disaster and Emergency Response.

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00:00:28,000 --> 00:00:32,000

It's a radar that sends a low-powered microwave signal through the rubble.

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00:00:32,000 --> 00:00:37,000

It looks for the very tiny reflections caused by the motions of the victims breathing and heartbeat.

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00:00:37,000 --> 00:00:42,000

We were approached by the NASA Jet Propulsion Lab about some new technology

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00:00:42,000 --> 00:00:46,000

they had developed what we thought it could be useful for in the civilian emergency response world.

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00:00:46,000 --> 00:00:52,000

We've been out here testing now for about a year, on and off, improving the project,

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00:00:52,000 --> 00:00:55,000

working with the Virginia Task Force 1 Urban Search and Rescue Team.

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00:00:55,000 --> 00:01:00,000

First responders can arrive at a disaster site and can rapidly look at a series of buildings

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00:01:00,000 --> 00:01:04,000

and determine if there are victims in there so that we can rescue them in time.

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00:01:04,000 --> 00:01:07,000

We've got the radar set up on one side of our rubble pile and we have our victim

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00:01:07,000 --> 00:01:12,000

on the other side of the rubble pile. The radar sends out a continuous very low powered signal.

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00:01:12,000 --> 00:01:17,000

It's about a 1000th of a watt, which is about a 1000th of what your cell phone puts out.

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00:01:17,000 --> 00:01:19,000

And we look at the reflections coming back.

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00:01:19,000 --> 00:01:24,000

So now the radar is looking through this pile of rubble and we'll collect some data

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00:01:24,000 --> 00:01:28,000

and we can see the heartbeats that we know that there's somebody there.

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00:01:28,000 --> 00:01:31,000

We can detect that because it changes where the rubble does not move.

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00:01:31,000 --> 00:01:36,000

This allows us to distinguish the reflections from a human from those of an animal,

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00:01:36,000 --> 00:01:38,000

which will have a different heart rate or a different respiration,

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00:01:38,000 --> 00:01:42,000

and the rescuers can come in and remove the rubble and rescue the victim.

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00:01:42,000 --> 00:01:45,000

This is an outgrowth of NASA's remote sensing technology.

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00:01:45,000 --> 00:01:47,000

NASA has historically done lots of things where we look at the Earth

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00:01:47,000 --> 00:01:52,000

from orbit or we look from Earth to the outer planets.

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00:01:52,000 --> 00:01:54,000

This will help a lot of the smaller teams.

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00:01:54,000 --> 00:01:59,000

The local fire rescue people such as Moore, Oklahoma, Oklahoma City or some of the other areas

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00:01:59,000 --> 00:02:03,000

where a tornado comes through, collapses buildings, schools, houses and the

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00:02:03,000 --> 00:02:05,000

only people there may be an engine crew.

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00:02:05,000 --> 00:02:10,000

But it's a big help to them if they can go ahead and know that there is somebody there

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00:02:10,000 --> 00:02:14,000

versus searching through a pile spending a lot of time and effort, there's nobody there.

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00:02:14,000 --> 00:02:17,000

Meanwhile, somebody in the next pile over, or the collapsed

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00:02:17,000 --> 00:02:20,000

building next door has somebody in that they haven't gotten to yet.

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00:02:20,000 --> 00:02:25,000

The whole unit itself weighs less than 20 lbs. and will be hand carried.

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00:02:25,000 --> 00:02:28,000

It fits in an overhead compartment of aircraft.