

ABSTRACT

Revolutionary System for Detection of Human Life Under Rubble or Debris.

It is not uncommon to read news on how many lives were lost during an Earthquake or when a building suddenly collapses. However what more concerning, is the fact that, we could save some of those unfortunate lives if we could've found them before they suffocate to death under the debris and rubble. If finding human life under rubble is one challenge, then finding life effectively in the least time is another challenge. Many of them are trapped under the rubble in such unfortunate situations. It is formulated that being trapped under the rubble increases the victim's chance of being injured fivefold. Though there have been very less probabilities of living through such situations, many can't make out of it. Therefore there is a dire need of a system that can identify human life under rubble. Possession of such a device with the rescue teams may help save many lives. 2-6 hours after the collapse, most of those that are trapped are still alive. So the device should be effective enough to identify life before time runs out. Our paper presents a system that could help in such situations.

The basic principle of the device is that when a microwave beam of certain frequency [L (or) S band (or) UHF band] is aimed at a portion of rubble (or) collapsed building under which a person has been trapped, the microwave beam can penetrate through the rubble to reach the person.

When the person is focused by the microwave beam, the reflected wave from the person's body will be modulated (or) changed by his/her movements, which include breathing and heartbeat. Simultaneously, reflected waves are also received from the collapsed structures. So, if these reflected waves from the immovable debris are cancelled and the reflected wave from the person's body is properly distinguished, the breathing and heartbeat signals can be detected. By proper processing of these signals, the status of the person under trap can be easily judged. Thus a person under debris can be identified.

'Finding them is not a challenge, Saving them in time is'.

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