

Promoting Using Sensor Alarm System as One Solution for Earthquake Evacuation System in Indonesia

Proposal Solution

Indonesia is strongly influenced by activity of collision of three major world plates, namely Indo-Australian Plate, Eurasian Plate and Pacific Plate. BKM (Indonesian Agency for Meteorology, Climatology and Geophysics) recorded earthquakes on average of 5,000 - 6000 times in one year with varying magnitudes and depths¹⁾.

One key factor for evacuation system is earthquake alert warning system. In Japan and other some developed country, the system already implemented nationally. P-waves (Primary waves) is one types of waves generated by earthquake and recorded by seismometer. When P-waves are detected, systems will send warning through internet, mobile phone, television or radio for people to conduct immediately evacuation action before arrival of S-waves (secondary waves). In fact, the difference in seconds in the early warning system can determine the number of fatalities and injuries.

In here, we propose the using of an Earthquake Sensor Alarm System for alert warning before arrival of strong shaking, as shown in Figure 1. The system is produced by a Japanese manufacturer that provides innovative products for security and disaster prevention. The system already introduced in some country such as South Korea, Ghana, Papua New Guinea, Turkey, Romania through cooperation between JICA, Japan External Trade Organization (JETRO), Japan Bosai Platform (JBP) and UNESCO. In Indonesia, the system was examined at schools in Yogyakarta and Aceh in 2016.

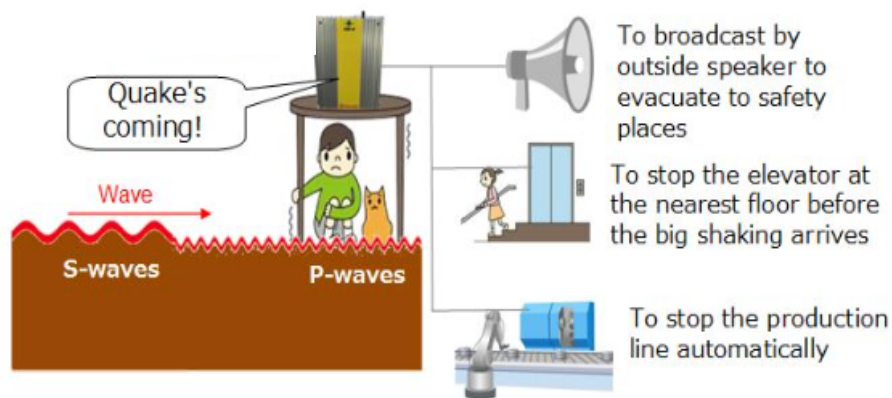


Figure 1 Earthquake Sensor Alarm System

When earthquake occurs, built-in accelerometer detects P-waves and issue earthquake alert before the arrival of strong shaking by S-waves. The system has a specialized software to distinguish between earthquake and living noise generated near device, which prevents it issuing of erroneous alert.

As shown in Figure 2, device can send the signals to the connected equipment like broadcasting facility, elevator, production facility etc and stop them in accordance with the estimated seismic intensity level of the earthquake. Display map and seismic intensity around 100km. The seismic intensity of each observation point is displayed on the map in real time on the PC screen.

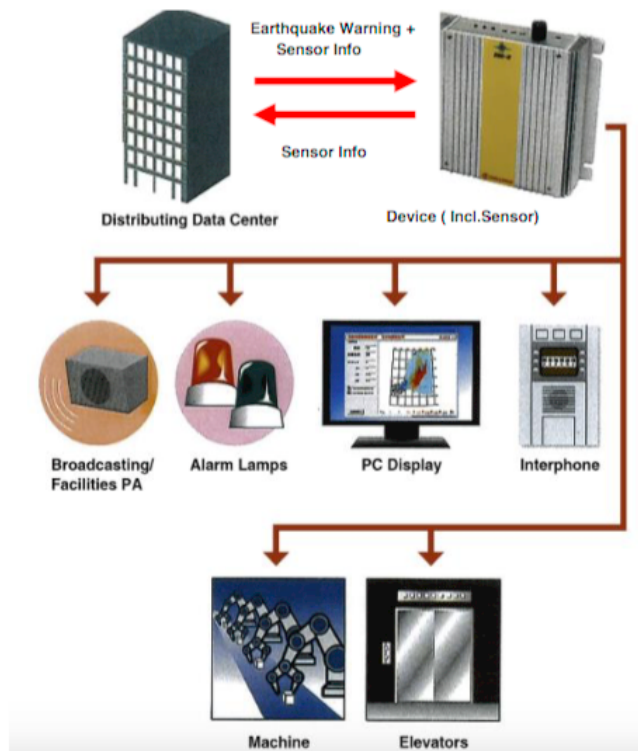


Figure 2 Function of Earthquake Sensor Alarm System

The system can be considered as one effective evacuation system solution for housing, rural, manufacture, schools, hotel or other public facilities. The advantages of this systems include: easy to operate, more cheaper compared with other system and easily relocated to any location needs. The system has multi-Language announcement. The issue alert can be choice by selected language from 11 languages, Japanese, English, Chinese, Korean, Indonesian, Persian, Turkish, Spanish, Portuguese, Russian and Arabic.

The success of the system also will depends on the self awareness of community. To achieve more effective results, we propose the use of the system by one set accompanied with preparation and evacuation practice in the area or facilities where the system will be installed. Therefore, community in the area must to get socialization of disaster preparedness which include enough knowledge about earthquake and family preparedness, also regularly to conduct evacuation simulations and training.

F or detail solution and any information required, please contact us at email : info@ojayac.com



1). <https://www.bmkg.go.id>