Innovative Robot Prototype for the Application of Robotic Intelligence to Rescue Earthquake Victims

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Major earthquakes, main and aftershocks, are common in different parts of the world. Depending on their scale, these natural movements can cause structural damage to habitable places; structures may collapse, trapping people under the wreckage. Finding victims under the collapsed structures can be challenging and life-threatening for rescuers. Robotic Intelligence could help rescuers locate, identify and alert the victim that help is on the way. This research studied the application of robotic intelligence to assist rescuers in locating and alerting victims. A study of types of robots for the desired application was made and a legged robot prototype was proposed. Combining programming Static TypeScript code with the legged prototype, a smart lens camera, LED display, tracking device and light fixture, a field exercise was conducted to test the application. The field exercise was performed under daylight and nightlight conditions and the robot's speed was measured. The proposed prototype was able to perform efficiently under the tested conditions. It was able to recognize a human and alert. The integrated LED light worked by illuminating the environment surroundings, making the victim's identification possible through the AI lens, displaying the "Help is on its way message" and emitting the same message through the device speakers; also, the GPS tracker allowed the robot handler to know the exact position or location. This type of Robotic Intelligence can be used to assist rescuers under natural disasters, and not only could speed-up the rescue time, but it can save both the victim's life and rescuers' lives.

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