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(54) Title of the invention : EARTHQUAKE RESCUE AND RELIEF OPERATIONS ROBOT.

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(31) Priority Document No	11/00	1)MR. VAIBHAV N. KADAM
(32) Priority Date	:NA	Address of Applicant :012-RAMRAO ADIK INSTITUTE OF
(33) Name of priority country	:NA	TECHNOLOGY, PAD. DR. D. Y. PATIL VIDYAPEETH,
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(61) Patent of Addition to Application Number	:NA	3)MR. PRAMOD S. JADHAV
Filing Date	:NA	4)MR. ANAY D. GHATPANDE
(62) Divisional to Application Number	:NA	5)MS. DIVYA SHAH
Filing Date	:NA	6)DR. VISHWESH A. VYAWAHARE
		(72)Name of Inventor :
		1)MR. VAIBHAV N. KADAM
		2)MR. G. H. SAKET SESHADRI
		3)MR. PRAMOD S. JADHAV
		4)MR. ANAY D. GHATPANDE
		5)MS. DIVYA SHAH
		6)DR. VISHWESH A. VYAWAHARE

(57) Abstract :

Earthquake affected regions pose threat not only to its victims but the rescue personnel who are concerned about saving them. The damage caused by earthquakes is massive which leads to destruction of buildings, roads, bridges etc. The victims are often trapped under such damaged structures, whose structural integrity is uncertain, thus acting as a barrier to the rescue operations. The primary idea behind developing Earthquake Rescue and Relief Operations Robot (ERROR bot) is to remove that barrier by deploying it in those regions and carrying out relief operations. Rescue bots must be rugged, robust and be able to move around in a multitude of terrains. This is particularly required because a region hit by an earthquake will have debris everywhere making the terrain highly irregular and non-uniform, and thus would be impossible to cover by traditional bots equipped with wheels. The ERROR bot overcomes this kind of limitation because it was designed with all-terrain motion in mind. The unique Tensegrity structures which constitute the entire body of the ERROR bot allow for robustness, ruggedness, and all-terrain motion. The other and the most important reason for opting such an unusual shape is that Tensegrity structures have this unique property of sustaining impacts by absorbing shocks, which makes it ideal to be used in relief operations. The flexible structure of the bot makes use of a to-and-fro motion much like that of an amoeba. ERROR bot is controlled by a user situated in a remote place using a Graphical User Interface that provides both the controls as well as a visual feedback or the first person view(FPV) of the bot using a camera placed in the structure. User monitors the FPV of the bot and searches for a possible survivor and when it finds one it delivers the relief gear to that survivor, that can be anything from vaccines, first-aid, knife etc.

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