A 3D-collaborative wireless network: Towards resilient communication for rescuing flood victims

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ABSTRACT
Every year, floods result in huge damage and devastation both to lives and properties all over the world. Much of this devastation and its prolonged effects result from a lack of collaboration among the rescue agents as a consequence of the lack of reliable and resilient communication platform in the disrupted and damaged environments. In order to counteract this issue, this paper aims to propose a three-dimensional (3D)-collaborative wireless network utilizing air, water and ground based communication infrastructures to support rescue missions in flood-affected areas. Through simulated Search and Rescue(SAR) activities, the effectiveness of the proposed network model is validated and its superiority over the traditional SAR is demonstrated, particularly in the harsh flood environments. The model of the 3D-Collaborative wireless network is expected to significantly assist the rescuing teams in accomplishing their task more effectively in the corresponding disaster areas.

KEYWORDS:
Collaborative wireless network; flood rescuing system; Search and Rescue (SAR); resilient network.