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Developers Win Mobile Apps Challenges

As more industries develop mobile technologies, demand for mobile applications (apps) increases. Within various humanitarian fields, mobile apps can serve a variety of special purposes, from providing users with the ability to communicate and share information wirelessly to facilitating disaster relief or humanitarian aid. The National Defense University saw a need for a landmine and explosive remnants of war reporting app, designing a contest to create one.

by Blake Williamson [Center for International Stabilization and Recovery]

In March 2014, the National Defense University's (NDU) Center for Technology and National Security Policy (CTNSP) launched the Explosive Remnants of War [ERW] and Land Mine Reporting Apps Challenge. Funded by the U.S. Department of Defense, NDU is a national security institution with the purpose of "educating, developing and inspiring national security leaders."¹ The competition was facilitated by ChallengePost, a website used by government agencies and software companies for crowdsourcing solutions to issues that can benefit from public awareness, participation and innovation.

From 18 March to 20 July 2014, the ERW and Land Mine Reporting Apps Challenge accepted submissions for open-source applications that allowed users to report ERW and mines. According to ChallengePost, 54 people registered for the competition, which was open to anyone who could "demonstrate appropriate knowledge of SMS [short messaging systems] and smartphone applications."^{2,3} Submitting entries directly to ChallengePost, participants were required to articulate how their respective solutions were sustainable and would produce new (or improve upon existing) methods for reporting ERW and mines.³ Submissions also needed to specify which interface was used to support their solution, as well

as how their method acquired and updated data that could identify the appropriate and obtainable impact measures.³

The contest sought to develop a mobile app that could be used by those likely to find ERW and landmines on a daily basis yet account for the rural communities' limited access to education and low literacy rates; hence, simplicity and intuitiveness were primary app requirements.⁴ Moreover, the app could not impose further risk to the user and could not "encourage untrained, ordinary citizens to seek out, remove, disassemble or otherwise affect" dangerous objects.⁴ The data submitted by the app also needed to be transferrable to the appropriate national authority via the Information Management System for Mine Action (IMSMA).⁴

In addition to the aforementioned sociocultural parameters, participants were obligated to follow a series of technical parameters. For the sake of potential future collaboration, Challenge submissions were to be open source; further, apps needed to demonstrate stability, sustainability, bandwidth conservation, interoperability with multiple platforms and data nongeneralization to ensure functionality with management systems such as IMSMA. The contest also asked participants to be familiar with developer networks to facilitate future collaboration with contributing developers.⁴

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The competition encouraged submissions from “public and private entities, labs, startups, students, developers, programmers and others.”³ Similarly, the rules urged would-be candidates to collaborate with software developers and experienced advisers who could provide real-world insight into the applicability of their respective solution.³ Candidates were also encouraged to provide insight into available data and agency operations as well as provide necessary information regarding network specifications and capabilities.³

A panel of judges from CTNSP, the U.S. Department of Defense’s Joint Improvised Explosive Device Defeat Organization and the University of Maryland reviewed submissions for their contribution toward improving ERW and landmine-reporting methods (60 percent); implementability (15 percent), upgradability (15 percent) and sustainability (10 percent).⁴ In September 2014, CTNSP announced the winners of the Explosive Remnants of War and Land Mine Reporting Apps Challenge: First place was awarded to Channel16.me Land Mine Reporting (LMR), which received US\$3,000.⁵ Taking second, Flare won \$1,500 for offering low-cost, 2G, SMS-based landmine reporting; and ERW Detector took home \$500 as third place.^{5,6} In addition to the prize money, CTNSP publicized the winning apps within the U.S. government.³

Created by a joint team of developers and “wearable software enthusiasts” from Austria, Japan and the United States, Channel16.me LMR functions as “a Walkie-Talkie specially custom-

ized for Land Mine Reporting” using the Android and iOS platforms.⁷ By allowing users to report findings with “text, audio or photo messages,” the application broadcasts to other app users in the vicinity.⁷ When app users find a suspicious object, they can launch the Channel16.me LMR app and create an image, a sound recording or a text message that is sent to nearby users with the original reports’ GPS coordinates.

In addition to the Explosive Remnants of War and Land Mine Reporting Apps Challenge, CTNSP launched the Disaster Apps Challenge in March 2014, encouraging developers to “find innovative ways to improve and refine existing disaster relief solutions.”⁸ Similar to the Reporting Apps Challenge, the Disaster Apps Challenge permitted a four-month window for developers to submit their solutions via ChallengePost. First place went to GovSAFE, the Survivor Assistance Form Editor, which locates users and identifies local disaster-assistance centers; second place went to Siaga Banjir (Jakarta Flood Alert), a monitoring and flood-alert application for the greater Jakarta area; and third place went to National Storm Shelter GPS Precise Map Points, which allows users to report shelter locations using exact GPS coordinates. Black Mamba Rescue Beacon received an honorable mention for its application which allows users to send coordinates to friends and family during a disaster.⁹ ©

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