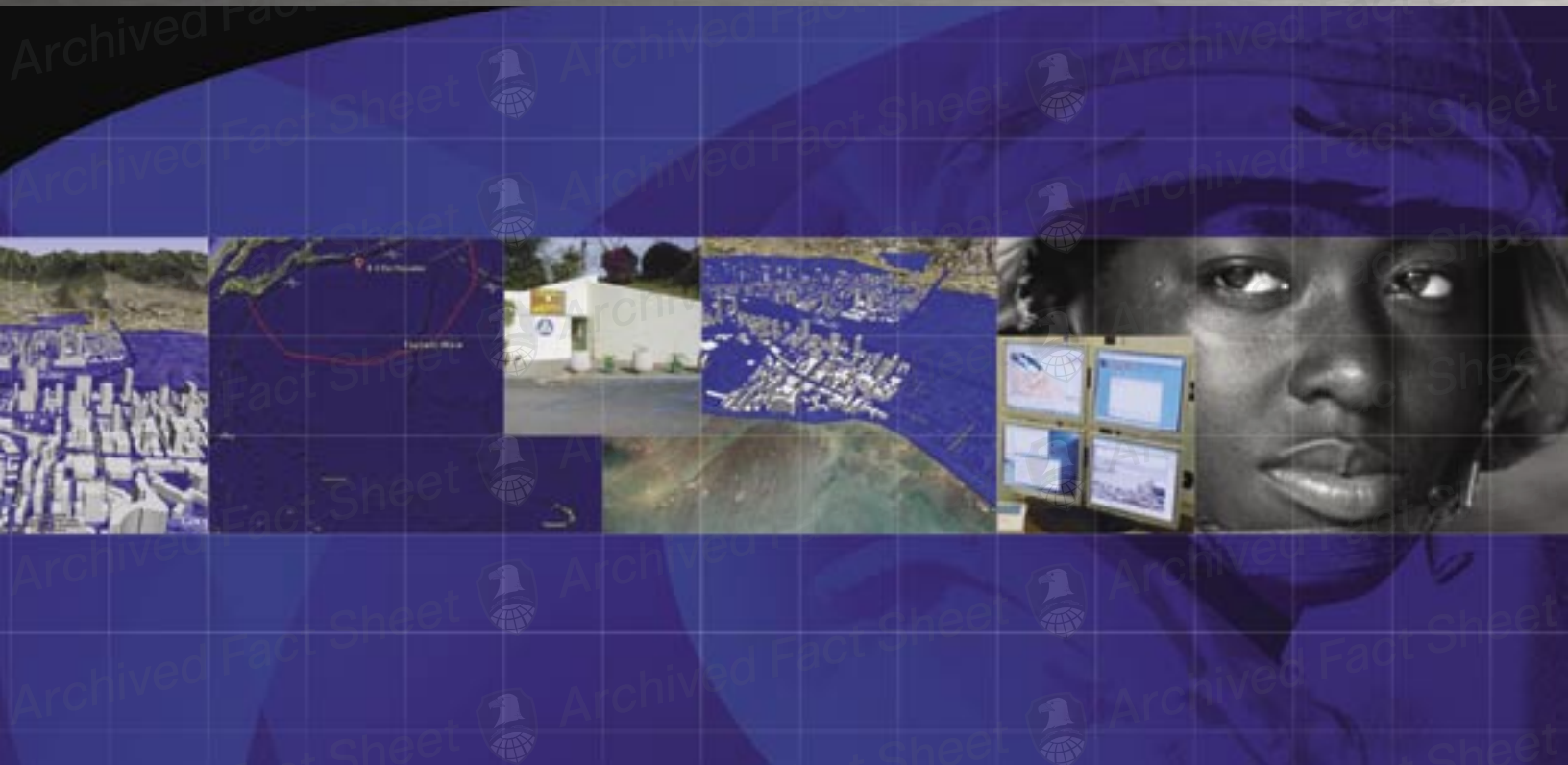# CR

## Command Responder

## Summary

- Intelligent Agent technology provides automated decision support for Hawaii disaster and homeland defense mission

- Automated generation and display in near real-time of multiple data in a graphic or digital imagery environment

- Net-centric architecture supports commercial off-the-shelf equipment in a Common Operating Picture (COP)

- Incorporates national and local weather for effective impact analysis

- Responses, alerts, and courses of action based on mission needs

- Provides functional interfaces and interoperability with state EOCs

**CR provides intelligent agent decision support to ensure integrated situational awareness, furnishing the emergency management mission team, accurate decision-making capabilities for disaster relief, preparedness response, homeland defense and recovery missions.**

Today's emergency operation center (EOC) experiences an unprecedented dependence on an information network and has to analyze large amounts of data to reach a decision. In order to sift through all the information and get quickly to the actionable knowledge, an EOC team needs decision support tools to assist with planning and operational decisions in order to maintain operational response to the community. The EOC depends on situational awareness to understand and analyze the land and ocean picture; communicate, navigate, find and fix the emergency; anticipate weather; receive warning alerts; track units and logistics; avoid duplicate coverage; and perform search and rescue. CR will provide the Hawaiian State Civil Defense (HSCD) a robust, state-of-the-art, highly automated, net-centric tool that will support critical EOC tasks

## Overview

Command Responder (CR) is a Small Business Initiative Research (SBIR) Program now in a 15-month development under a Phase III contract with 21st Century Systems, Incorporated as the prime contractor. The objective of the contract is to develop a modular software tool to provide Emergency Management Situational Awareness (SA) and an automated intelligent agent (IA) decision support capability to the Hawaiian State Civil Defense (HSCD).

The CR software agent provides decision support and enhanced situational awareness in support of the HSCD emergency management mission(s). The situational support focuses on enhancing current capabilities, integrating new capabilities and applying intelligent agents for decision support and enhanced situational awareness. The display system integrates existing graphics and Google Earth Enterprise System as the Common Operating Picture (COP). Historical data files of events and actions are created and archived to assist in improving disaster mitigation, preparedness, and response.

## Technical Description

Command Responder software framework integrates within a single COP--the underlying IA application with inherent portability. CR utilizes specific government-owned software in the design. In addition, the IA development that 21CSI implements leverages commercial visualization (e.g. Google Earth Enterprise System) in order to provide an immediate operational and visualization capability. This approach allows additional layers of data and a repetitive time box software development approach to rapidly incorporate additional capabilities.

The development will work closely with HSCD to integrate current data feeds along with the standard operation procedures required to understand and execute emergency management and homeland security missions. Key to the CR effort is building the necessary user interfaces that allow the operator to see and interact with the data feeds and multiple organizations.

The Command Responder intelligent agents correlate Digital Terrain Elevation Data (DTED) and map layers covering the land mass of the state of Hawaii. Integrated weather feeds are correlated with rain, winds, seismic activity, wave height and floods for alerts and courses of action for personnel such as medical, evacuations, routes, and available equipment.

## Benefit to the Civil Defense/Homeland Security

Command Responder will provide an immediate and critical capability to predict, plan, and coordinate actions to mitigate and recover from natural disasters. CR capabilities will greatly enhance all aspects of executing disaster operations including tsunami planning, prediction, warnings, magnitudes and impacted areas. The results are saved lives and the mitigation of property damage. CR provides the essential capability to synchronize disaster assets and organizations and provide decision support critical to actual operations.

## Joint Integration and Interoperability

The state civil defense and Homeland Security are working to develop a networked set of software applications that provide for Homeland Defense and situational awareness. Command Responder capability is being developed to work with the civil defense program as part of Emergency Operation Centers. As state EOCs evolve to become a federal command station that hosts the National Incident Management System (NIMS) protocols and the National Response Plan (NRP), then the U.S. Government Domestic Terrorism Concept of Operations Plan will become part of the CR system. The basic system provides the structure and processes of the national approach to domestic incident management designed to integrate the efforts and resources of federal, state, local, tribal, private, and nongovernmental organizations.

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