



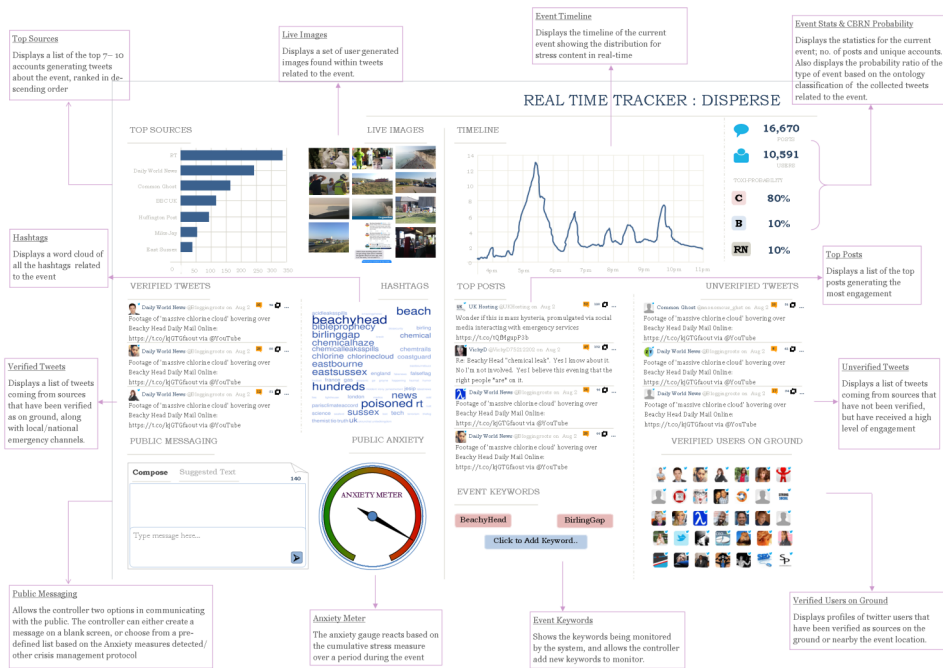
This project has received funding from the European Union's Horizon 2020 Grant 653409



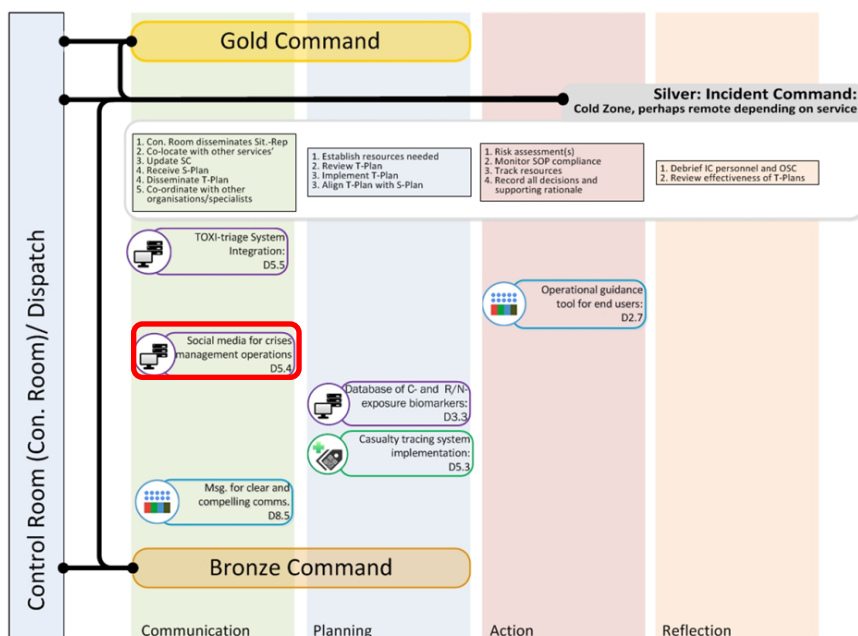
Social media for crises management operations D5.4



TOXIMOTIVE



Social media connector for situational awareness information around CBRN events



The Accimap schematic at left shows the position of TOXIMOTIVE as the Deliverable D5.4. Social media for crisis management in the concept of operations (CONOPS).

TOXIMOTIVE will be used by Silver Command and will continuously inform staff in the Control Room (Con. Room)/Dispatch. This deliverable provides situational awareness information before, during and after a CBRN event. TOXIMOTIVE provides automated, processed knowledge of human reactions to a CBRN event available on social media.

TOXIMOTIVE Social media connector

Technology:	Social media connector (Early-detection and emotional analysis) System
Partner:	Loughborough University
Desired operational effect:	Enhanced situational awareness information around CBRN events available from communication on social media as a high speed measure of experiences and observations from those close to the event.

Why is this technology helpful?

(Why is this helpful/necessary/needed for the project, the operation; the end user; the casualty?)

TOXIMOTIVE will analyse in seconds thousands of tweets providing a fast and abundant flow of information to command level of first responders. The connector will also aid rapid searching through media channels for information relating to an event and will group by subject diverse tweets about an event better and more efficiently than manual searching. Emotional analysis by TOXIMOTIVE of an ongoing CBRN event will deliver the broad spectrum of emotions of the public, e.g. fear or surprise. Natural reaction of the public will be captured for Gold or Silver Command as a measure of public perceptions of rescue and emotional impacts of the event and rescue. This understanding should aid the content and dynamics of communication from Gold Command into social media or for conventional news channels. A goal is wise management of information flow within the public trust and high ethical standards needed in the management of rescue surrounding a CBRN event.

What does this technology do?

(e.g. Assists with mapping, tracking, sensing etc.)

The social media analysis tool being developed, will provide monitoring of social media for early event detection of potential CBRN events. The system will classify Tweets from Twitter, using a unique defined CBRN Ontology, to ascertain if an event falls under CBR or N. It is envisioned that the system will assist in providing some information to populate a METHANE mnemonic (an abbreviation used by UK emergency services to ensure all information needed is passed on when teams arrive at an incident- Major incident declared; Exact location; Type of incident; Hazards present or suspected; Access- routes that are safe to use; Number, type, severity of casualties; Emergency services present and those required), but also the related tweets and emotional analytics. Users will be presented with a live dashboard, which can be used to track social media for public engagement with the event.

How does this technology work?

The Social Media Server houses the algorithm used to analyse the data stream from Twitter and is constantly classifying tweets into relevant topics of an event providing criteria are met within the CBRN ontology and for rules that validate early onset of an event. The Social Media Server obtains data through the Twitter REST (*Representational State Transfer*) API (Application Programming Interface) via Tweet Search Stream.

The Social Media Connector API receives requests for the TOXIMOTIVE Dashboard and synchronously delivers data for visualisation of on-going CBRN incident including a list of currently developing events. Users of TOXIMOTIVE can create and monitor new categories of events by providing relevant keywords using the Dashboard. Emotional analysis is achieved through an existing, third-party, LU-developed system (EMOTIVE) which uses Tries. Tries is a tree structure for ontology matching and has a custom POS tagger (Brill with N-gram tagger) renowned for having one of the best F-measure rate (Precision over Recall) for fine-grained emotions.

TOXIMOTIVE Social media connector Factsheet

GENERAL

Company Details:

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Portability N/A

Technology Social Media Management System for CBRNE

Unit Cost Low (Service subscription based)

Description Early-detection and emotional analysis

Availability Immediate

Current Users : Under development

OPERATIONAL PARAMETERS

Detection Social Media

Detection State Social Media data

Start up Time Seconds to Load Dashboard on Web Browser

Alarms N/A

Response Time Real-time

Selectivity N/A

Sensitivity N/A

PHYSICAL PARAMETERS

Size N/A

Weight N/A

Power Requirements N/A

LOGISTICAL PARAMETERS

Durability N/A

Environmental Considerations N/A

Shelf Life N/A

Consumables N/A

Calibration Requirements N/A

Repairs N/A

Repair Options: repairs via website updates

Maintenance Costs: Will depend on installation setup

SPECIAL REQUIREMENTS

Operator Skills Low—Medium

Training Required Minimal

Training Available Feature Explanation/Guide

Manuals Available On-screen help for features

Support Equipment N/A

Communication Capability Needs internet connection *Restful API (GET, PUT, UPDATE, DELETE)*

Tamper Resistance N/A

Warranty N/A

Testing Information N/A

Applicable Regulations N/A

Summary of TOXI-Triage Technologies



Number	Detector name	Technology	Unit Cost (<500€ to >5K€)	CAS Detected (All to None)	TICs/TIMs Detected (All to None)	Sensitivity (1/10 ILDH for all CAS/TICs to No detection)	Resistance to Interferents (Responds only to Cas/TICs to Many interferents)	Response Time (<10s to >2mins)	Start Up Time (<30s to >30mins)	Detection States (All states to no capability)	Alarm Capability (Audible and Visible to No alarm)	Portability (Handheld to >25kg)	Battery Needs (Standard to Specialised)	Power Capabilities (Battery to AC)	Operational Environment (All to Restricted)	Durability (Rough handling to Stationary)	Operator Skill Level (None to Specialist)	Training Requirements (None to >8hours)
D4.4	BreathSpec®	Breath Analysis	●	●	●	●	●	●	●	●	●	⊗	●	●	●	●	●	●
D4.1	ChemProDM	Stand off IMS detectors	●	●	●	●	●	●	●	●	●	⊗	●	●	●	●	●	●
D4.1	T4i DOVER™	stand-off GC-PID detector	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
D4.1	mini-IMS	Stand off IMS detectors	●	●	●	●	●	●	●	●	⊗	⊗	●	●	●	●	⊗	⊗
D4.2	RanidFly	Stand off R/N	●	●	●	●	●	●	●	●	●	⊗	●	●	●	●	●	●
D4.3	HSI	Stand off detection	⊗	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
D4.5	GDA-P	Personal IMS Detection	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
D5.4	GDA-X	Stand off detection	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
D4.5	SLGE	Spray Extraction	⊗	●	●	●	●	●	●	●	●	⊗	⊗	●	●	●	●	●
D5.3	Tag and Trace—Triage	Casualty Tracking	●	N/A	N/A	N/A	●	●	●	N/A	●	●	●	●	●	●	●	●
D5.3	Tag and Trace Sample	Sample Tracking	●	N/A	N/A	N/A	●	●	●	N/A	●	●	●	●	●	●	●	●
D5.4	TOXIMOTIVE	Social Media	●	N/A	N/A	N/A	N/A	●	●	N/A	N/A	N/A	N/A	N/A	N/A	N/A	●	●
D5.5	Integrator		⊗	N/A	N/A	N/A	●	●	●	●	●	●	●	N/A	●	●	●	●
D5.5	Data Hub		⊗	N/A	N/A	N/A	●	●	●	●	●	●	●	N/A	●	●	●	●

