Homeland Security
Science and Technology

Enhancing Community Safety: Gang Graffiti Automatic Recognition and Interpretation System
A DHS Science and Technology Center of Excellence Solution

Mobile App Fights Gang Violence

Gangs are a serious threat to public safety. According to the 2011 National Gang Threat Assessment, as of April 2011, about "1.4 million gang members belonging to more than 33,000 gangs were criminally active in the United States." Gangs commit about 48 percent of violent crime in most communities; in others, they are responsible for up to 90 percent of violent crime.

Law enforcement officials in Indiana and Illinois are using the **Gang Graffiti Automatic Recognition and Interpretation (GARI)** system, developed by the Center for Visualization and Data Analytics, a Department of Homeland Security (DHS) Science and Technology (S&T) Center of Excellence, to identify and track gang activity in their communities via mobile phones by identifying both graffiti and tattoos.

Gangs use graffiti to intimidate rival gangs and to communicate messages, including challenges and warnings. They use tattoos to signify gang membership. Having hand-held access to graffiti and tattoo images and their locations helps officers track gang affiliation, growth, membership, and activity. The ability to track gang movements also helps communities develop strategies to mitigate gang activities.

> "GARI is still in its infancy—but once this gets going, it's going to be beautiful—it will be very helpful and very useful. I love it—and I'm really excited about the possibility of using it with the prison population to identify tattoos. Tattoos are more specific because you can identify an actual person. GARI can really help the street officers because it's available 24/7—it's quick and instantaneous."
>
> ~ Detective Steve Schafer
> Criminal Gang Unit
> Indianapolis Police

GARI Helps Users

- Determine when a new gang moves into an area
- Identify what gangs are active in an area
- Target youth who are at risk of gang recruitment
- Prepare for potential outbreaks of gang violence

GARI YouTube Training Video

You can find the training video on YouTube at *https://www.youtube.com/watch?v=tjGJuodhEVk&spfreload=10*.

How It Works

GARI is a mobile device application that analyzes gang graffiti and tattoos associated with gangs. A user takes an image of the graffiti or tattoo using a smartphone or tablet and immediately receives an interpretation of the gang affiliation and what the graffiti or tattoo means. The system's repository of gang graffiti images gives users historical information and geographical locations of other images, helping to track gang movement, growth, membership, and activity.

GARI adds new images to a central database, records their GPS coordinates, and records the date and time the images were acquired. The Cook County Sheriff's Department currently has approximately 2,000 images on its server, and the INGang Network has almost 2,500 of both graffiti and tattoos. The test server at Purdue has approximately 1,800 images from a number of sources. GARI is available for both the Android platform and iOS and has a Web-based interface for use with other platforms, such as desktop computers and mobile devices.

GARI for Public Safety and Other Users

GARI is being used by the Indiana Department of Public Safety Division of Homeland Security, the Indianapolis Metropolitan Police Department, the INGang Network, Cook County Sheriff's Department, and 15 other police departments.

U.S. Border Patrol, intelligence analysts, and National Fusion Centers could use GARI as a homeland security solution to track international gangs involved in drug trafficking, identity theft, counterfeiting, and human trafficking.

In local communities, school officials or neighborhood watch groups could use GARI as a crime fighting tool.