

NeoFace® Reveal

Irving Police Department (IPD)

Customer

- Irving Police Department (IPD)

Industry

- Law Enforcement

Challenges

- Lack of physical crime scene evidence to pursue
- Few ways to leverage security video footage and photo evidence
- Costly and time consuming investigative efforts to identify suspects
- Heavy caseloads for investigators with limited time
- Public safety issue when crimes go unsolved, becoming cold cases

Solution

- NEC's NeoFace® Reveal facial recognition system
- NEC training and ongoing product support
- Database integration of Irving's offender database with those of other cities

Results

- High success rate provides fast, accurate suspect identification (ID) intelligence
- Increases actionable leads to help solve cases and ease caseloads
- Enhances safety for the officer on the street, with real-time suspect ID assistance
- Decreases departmental costs by saving detective man hours and reducing need for added personnel
- Increases public safety by enabling faster rates of offender apprehension

Irving Police Department (IPD)

As one of the largest cities in Texas, the city of Irving is part of the Dallas-Fort Worth metroplex. Geographically located between Dallas and Fort Worth, Irving is considered an inner-ring suburb of Dallas. Comprised of the upscale, 12,000 acre Las Colinas commercial/ industrial/ residential development, a large part of the Dallas Fort Worth International Airport (DFW), as well as many residential communities, the city of Irving is home to the most ethnically diverse zip code in the United States.

Chief Jeff Spivey of the Irving Police Department (IPD) confirmed, "Irving is a very diverse city, both economically and culturally. We have a number of residents at or below the poverty level and we have a great deal of wealth here as well, because of the Fortune 500 headquarters located here."

"We've had success stories with cases that you would never think would be a success story! I'm a firm believer in the NEC algorithm- the way it makes matches, is extremely accurate."

The Las Colinas master-planned development, the very first of its kind in the United States, with its luxury hotels, landmark office towers, Irving Convention Center, distinguished homes, luxury townhomes, entertainment district, and private clubs, operates side-by-side with major industrial parks and the rich ethnic diversity of area businesses, entertainment, and various residential neighborhoods within Irving city limits.

The Irving PD protects and serves this unique city, and endeavors to perform effectively while also building relational bridges between law enforcement and the city's wide range of ethnic sub-communities.

“So I would encourage you to look at this as an opportunity to give your investigators a chance to develop greater leads in cases that would otherwise go unsolved.” - Chief Spivey

The population of the city of Irving is currently about 240,000 residents, however, Fortune 500 corporate headquarters located here--enterprises such as Celanese, Exxon Mobil, Kimberley-Clark, Fluor, and more, increase the city's population in daytime to more than 300,000 persons.

The role of Irving's law enforcement officers is to respond daily to urgent calls within the community, to actively conduct investigations to solve criminal cases, to reach out and assist and protect the human spectrum of socio-economic, educational, and cultural diversity uniquely found within this single jurisdiction.

Challenges

When involved in a criminal investigation, one of the most difficult situations for any police detective is being forced to proceed without sufficient evidence that can lead to a conviction. Often the physical evidence found at a crime scene is minimal to none, with perhaps only a poor quality security video of the assailant, or a cellphone photo, leaving detectives to begin an investigation with only a dark, grainy image or video.

Sgt. Jason Mullins, Supervisor of Irving PD's Crime Information Center, related, “With the advent of cell phone cameras and people installing surveillance cameras, whether in their homes or a business, there's now more technology out there than ever. We were seeing more and more criminal cases with photo images or video evidence, but little else to go on.” In such cases, with no fingerprints, or eyewitnesses, and no facial identification technology to help identify a suspect, a detective's time was spent canvassing the area and depending on neighbors or local media to provide a lead.



Managing growing caseloads is also a constant challenge for law enforcement. Officers with the largest caseloads are actually not juggling big homicide investigations or armed robberies—but rather the high volume of “routine” cases: shoplifting, forgery, narcotics, theft—offenses often perpetrated in locations that do have video surveillance systems. However, other than assistance from local news media, this department had no way of leveraging those images. On a busy news day, crime photos and videos may not make the evening news broadcast. Without an actionable lead, this becomes a public safety issue when--given the huge caseloads, these types of cases unfortunately go unsolved, leaving the criminal element on the streets to repeatedly offend and inflict further damage to the community.

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These situations increase the high cost of the investigative procedures necessary to pursue “cases without leads”. City of Irving's Police Chief, Jeff Spivey, affirmed, “As any Chief of Police knows, we're required to do more, with less. Our budgets continue to remain the same, or shrink -- yet the demands that are put upon us are higher and higher, and greater and greater every day.”

Solution

NEC's Advanced Recognition Systems (ARS) group fully understood law enforcement's need for a speedy, accurate and easy-to-use face identification solution, and provided Irving PD's Crime Information Center with NeoFace® Reveal, NEC's high-speed matching facial recognition system. NEC's NeoFace® Reveal delivers extremely fast and reliable facial recognition to law enforcement by enhancing and organizing photos--including partial images with poor resolution, and matching them to persons within an existing offender database, to assist with leads in criminal investigations. When it was independently evaluated by the



National Institute of Standards and Technology (NIST), part of the U.S. Department of Commerce, NEC's NeoFace® Reveal achieved the highest performance evaluation as the most accurate face recognition algorithm solution on the market for "one-to-many" video searching.

Chief Spivey stated, "What the Crime Information Center does is allow police officers and civilian analysts to sit in a room together, to listen to the police radio, provide our police officers on the street with real-time Intelligence, and to mine data that we have in our system--but the technology that NeoFace allows us to have really puts that over the top. It's truly a layer that we've never experienced before."

The Chief added, "NeoFace® Reveal has been a very good tool to enable our analysts and our Intelligence Officers to now take a surveillance video, or a picture that someone took on their smartphone, run that through our system, and more quickly identify a suspect, which leads to a quicker apprehension."

"The officers were able to take a photo in the field, send it to us, and within minutes we were able to identify the suspect for them."

Sgt. Jason Mullins, the IPD's Crime Information Center Supervisor, said, "In the Crime Center, what we work to do is to get intelligence information out to officers on the street, to help them do their jobs safer and more efficiently.

"This NEC solution is really impressive because of its ability to make a match—and that's what our investigators, and folks who've seen us demo it for them, have been most amazed by. We've had several incidences where we submitted a probe image that was blurry or very pixilated or the suspect was represented at an awkward angle, and this technology was still able to make a match and do it well, so I have absolute confidence in it, as do my peers here who've seen the NeoFace® Reveal algorithm work.

Sgt. Mullins explained, "This facial recognition software is completely racially, sexually and ethnically agnostic. In other words, we enter the picture, and if we choose to not enter any of that information, it will make the comparison solely on the points on the face; it doesn't take into consideration color of the skin or any of those things that might lead it to lean one way or another."

Officers in the Crime Center have confirmed that implementing the solution within the department was actually surprisingly easy and effective. Detective John Hock, ATF task force officer and IPD Intelligence Officer, agreed, "After the training day, we all hit the ground running using the NEC NeoFace® Reveal software. It's very simple and user-friendly. As for productivity, I would say this is definitely an added tool to our tool belt when it comes to working our cases, or assisting other detectives in working cases. When we think we hit a dead-end or a barricade in the case, or we think the case has gone cold, we can always try this again, or try the image every few months."

Results

Det. Hock stated, "Since we've had this, we've had success stories on cases that you would never think would be a success story! I'm a true believer that the NEC algorithm--how this makes matches, is extremely accurate."

On the subject of use applications, Sgt. Mullins shared, "We're able to use the NeoFace Reveal solution in a number of ways. When our investigators get a criminal case with surveillance footage of the offense, we're able to take that footage, feed it into our NeoFace program, and quickly identify a suspect if they've ever been dealt with by the Irving Police Department



and we have their mugshot on file. We've also had officers in the field who had subjects that they were confident were lying to the officers about their identity. The officers were able to take a photo in the field, send it to us, and within minutes we were able to identify the suspect for them."

Regarding the impact on departmental costs, Chief Spivey stated, "To

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leverage the ability technology gives us to maybe supplant the need to have boots on the ground enables us to provide a service to our community without going back to the community to ask for more police officers to meet the demands that are being put upon us. This technology allows us to truly provide police service without necessarily providing more police officers out there on the streets. From a fiscal standpoint, it makes us more effective and efficient at delivering the same type of service without the same ongoing costs that having more personnel requires. Police Chiefs around the country are beginning to recognize that as technology becomes more and more affordable and more available; we're taking advantage of those opportunities."

Chief Spivey stated, "In talking to my peers, I would encourage them to trust the algorithm that NEC has developed within this software. This technology provides a lead--It doesn't solve the case for you. So I would encourage you to look at this as an opportunity to give your investigators a chance to develop greater leads in cases that would otherwise go unsolved."

NEC's Relationship with Our Customer

NEC Advanced Recognition Systems (ARS) experts have had a strong, long standing relationship with this government customer, as Sgt. Mullins confirmed, "It's been a great experience. Our relationship with NEC has been great for a number of years, even prior to our adopting this particular software."

NEC continues to work with Irving PD for increased public safety by assisting with the ongoing integration of Irving's offender mugshot database with those of other Dallas area cities, enhancing shared information for more possible matches for suspects in ongoing investigations as well as cold cases.

Chief Spivey concluded, "I appreciate our relationship with NEC. The people are wonderful to work with, and I'm glad that they are our community partner."

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