


ARJIS TACIDS

Tactical Facial Recognition in the Field



May 22, 2013
LEIM Conference
Scottsdale, AZ

ARJIS AUTOMATED REGIONAL JUSTICE INFORMATION SYSTEM

WHAT IS ARJIS?

- Automated Regional Justice Information System
- Joint Powers Agency (JPA) formed in 1981 and managed by the local police chiefs and sheriff within San Diego County
- One stop shop for secure access to the regions' public safety data
- 2.45 million transactions annually
- Single sign-on for 82 law enforcement entities to share data, identify subjects, and solve crimes

ARJIS AUTOMATED REGIONAL JUSTICE INFORMATION SYSTEM

ARJIS Mission and Goals

- Promote Partnerships, Cooperation and Data Sharing at ALL levels of Law Enforcement
- Assist with Suspect Identification
- Provide Mechanism to obtain Person and/or Vehicle Status
- Use Data to establish History of involvement with Police Incidents
- Use Data to establish Links between People, Vehicles, Property, Locations, etc.
- Use Data to provide Investigative Leads to help solve cases
- Provide Regional UCR Reporting Capabilities
- Provide mechanism for Crime Analysis and Statistical Reporting



SAN DIEGO DATA CONTRIBUTING AGENCIES

- Carlsbad Police Department
- Chula Vista Police Department
- Coronado Police Department
- El Cajon Police Department
- Escondido Police Department
- La Mesa Police Department
- National City Police Department
- Oceanside Police Department
- San Diego Harbor Police
- San Diego Police Department
- San Diego County Sheriff
 - City of Del Mar
 - City of Encinitas
 - City of Imperial Beach
 - City of Lemon Grove
 - City of Poway
 - City of San Marcos
 - City of Santee
 - City of Solana Beach
 - City of Vista



ARJIS EX-OFFICIO MEMBER AGENCIES – 9,200+ USERS

- CAL State San Marcos
- California Department of Corrections & Rehab
- California Department of Forestry & Fire Protection
- California Department of Health Services/Medical Fraud
- California Department of Insurance
- California Department of Justice BNE (Bureau of Narcotic Enforcement)
- California Highway Patrol - Farnham St
- City of Del Mar Park Ranger
- DA Catch (SD DA-Computer & Technology Crime High-tech Response Team)
- Donovan Correctional
- Grossmont/Cuyamaca College Police Department
- Imperial County LECC
- Metropolitan Transit District
- Mira Costa College Police Department
- Palomar College Police Department
- RATT (Regional Auto Theft Task Force)
- San Diego City Schools Police Department
- San Diego Community College Police Department
- San Diego County LECC
- San Diego Harbor Police Department
- San Diego State University
- SANDAG
- Southwestern College Police Department
- United States Attorney
- United States Bureau of ATF (Alcohol, Tobacco, Firearms)
- United States Department of Justice Drug Enforcement Agency (DEA)
- United States Department of State
- United States Federal Bureau of Investigation (FBI)
- United States FBI - Annex
- United States FBI - India Street
- United States FBI Squad 2
- United States FBI - Squad 9
- United States Federal Probation
- United States Fish & Wildlife Service
- United States Forest Service
- United States Internal Revenue Service Criminal Division
- USIS (Formerly known as US Investigative Services, Inc.)
- United States Marine Corps - Camp Pendleton Provost Marshal
- United States Marine Corps - Miramar Provost Marshal
- United States Marine Corps Recruit Depot
- United States Marshals Service
- United States Naval Commander Southwest Region
- United States Naval Consolidated Brig (Miramar)
- United States Naval Criminal Investigative Service (NCIS)-Camp Pendleton
- United States Naval Criminal Investigative Service (NCIS)-San Diego - 32nd St
- United States Naval FISC (Naval Fleet Industrial Supply Center)
- United States Postal Service
- United States Pretrial
- United States Secret Service
- United States Social Security Administration
- University of CA, SD (UCSD)



ARJIS DATA AT A GLANCE

- 4.5 million names
- 1.1 million booking photos
- 7 million documented incidents:
 - 2M+ Crime Cases
 - 1M+ Arrest Reports
 - 1M+ Field Interviews
 - 167,749 Traffic Accidents
 - 2M+ Citations
 - 570,878 Pawn Slips
 - 123,621 Officer Notification Alerts (Registered sex offenders, gang members, etc.)
 - 42 million LPR Reads



ARJISnet Law Enforcement Share Point Portal

ARJIS Hosted Desktop Applications and Services:

- ❖ Coplink
- ❖ State, Regional, Federal enterprise Retrieval System (SRFERS) Tactical Query
- ❖ Officer Notification and Smart Alerting System
- ❖ ARJIS eQuery
- ❖ ARJIS BOLO Distribution Lists and Featured BOLO
- ❖ Crime Mapping
- ❖ Cognos Statistical Reporting – includes full UCR reporting services for the entire region
- ❖ ARJIS Global Query
- ❖ ARJIS Regional Directory

Courtesy Links to External Data Sources:

- ❖ Cal-Photo
- ❖ Cal-Gang
- ❖ Parole LEADS
- ❖ N-DEx National Data Search
- ❖ Megan's Law
- ❖ State and Federal Inmate Locators
- ❖ Mexican (Baja) Driver's License and Registration Search
- ❖ San Diego Sheriff - SDLAW



eMobile - FIELD ACCESS TO DATA

- Real-time field access to critical justice data for positive identification and enhanced public safety
- Over 700 mobile devices deployed at ARJIS member agencies



eMobile Devices

- Windows Mobile, Android handheld and tablet
- New model testing (Speed, ease of use, battery, display, camera)
- Group user training provided



XV6700/6800



Imagio



Epic

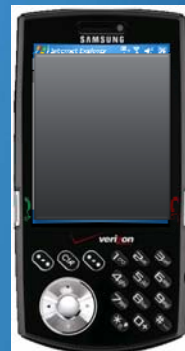


Android Tablet



eMobile APPLICATIONS

- eMobile supports a variety of applications:
 - SRFERS Mobile
 - License Plate Reader
 - Mapping
 - ONASAS Alerting
 - SDLaw
 - DMV Cal-Photo Mobile
 - Cal-Gang Mobile
 - Mobile Facial Recognition
- Thanks NIJ!!



Top 3 Tactical Information Requirements

Identity

Status

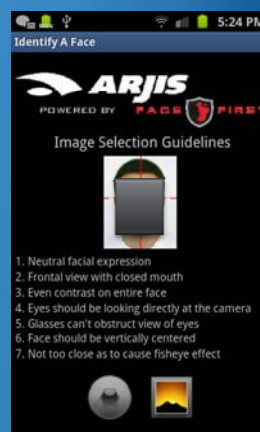
Incident and/or Criminal History



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TACIDS Facial Recognition in the Field

- Field Access for Biometric Identification of Unidentified Subjects
- Search 1,000,000+ images from San Diego County Booking Records
- Review of prior events for subject
- Real-time Officer Notification Alert based on Photo
- Create new Field Interview / Suspicious Activity Report



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National Institute of Justice Research and Development Grant

Goal to implement a mobile application with facial recognition capabilities to assist in positive identification

Phase I: Conduct a Market Analysis for best Algorithm

Phase II: Competitive Bid Process for Pilot Project

Phase III: Pilot Implementation, Testing and Evaluation

Phase IV: Custom Development to add Field Interview

Phase V: Enable Enterprise Production System



How Facial Recognition Works

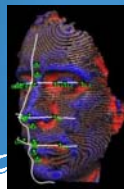
Images and biographical data are enrolled with FR algorithm

Application provides mechanism to submit 'Probe' image

Probe image is encoded and compared to database files

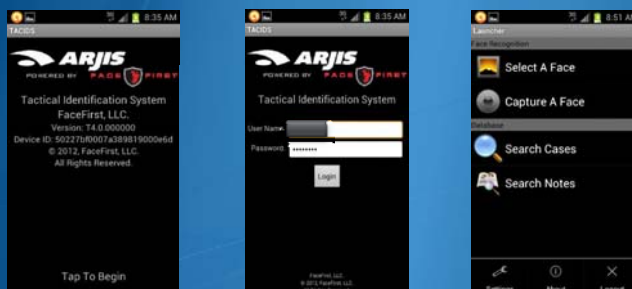
Candidate list of potential matches is returned (ranking score)

Officer makes judgment as to actual match and takes action



TACIDS Functions

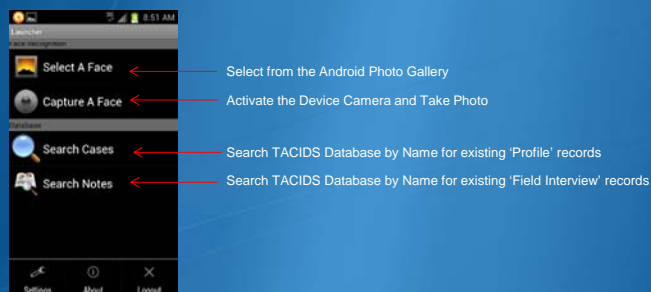
Launch Application and Login using regular ARJIS credentials:



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TACIDS Functions

Select, Capture – Search Cases, Search Notes:



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TACIDS Functions

Select or Take New Photo and Submit for Identification:

Take the photo (holding device horizontally) and when you see the following, you can Save it, which starts the identification process.






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TACIDS Functions

Review results side by side then 'Add Image to Case':

You will be presented with a list of "Matching Cases" where the photo you sent will be at the top (with a + sign) above the candidate list in reverse ranking Confidence order. If you determine that there is a match, touch the -> icon and you will see the images side by side, along with the Case (person profile) data. This will show the overall profile on the person selected, with the probe and file images displayed side by side. If you touch the Add Image to Case button, you are adding the probe image to the person's profile for future use. You will then be prompted to add a Note. This is essentially a field interview incident where certain information from the profile is pre-populated and ready for editing.





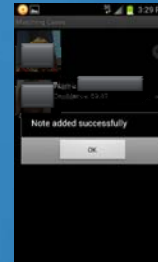
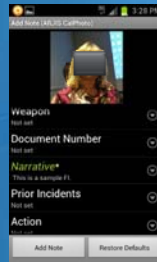
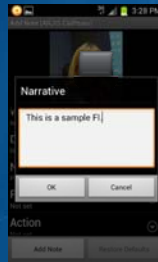

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TACIDS Functions

Add a Note (Field Interview) Incident Record:

Fill in and/or edit the fields for this field interview incident prior to touching the Add Note button. If you accidentally submit the Note before updating the pre-populated fields, you can look up the Notes and edit and then resubmit. Future versions of TACIDS will include additional Field Interview fields such as Crime Potential, Location, Vehicle information and will ultimately provide for multiple additional photos capture (for tattoos, vehicles, etc.).

The following screen shots show how to edit the data fields and submit. Each data field that is edited will change to italic green font with an asterisk.

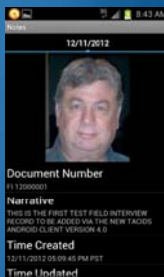
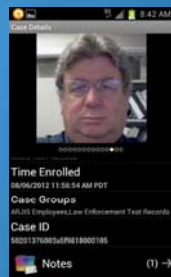
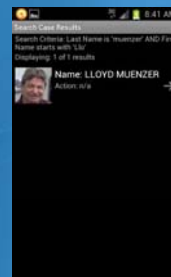
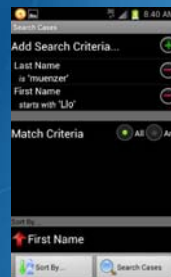
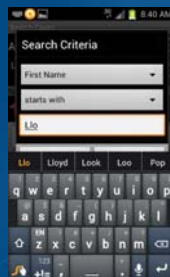


TACIDS Functions

Search Cases and Notes:

From the TACIDS home screen, select Search Cases or Search Notes.

Touch the Add Search Criteria and manipulate the name and criteria fields as desired. The Name field can be Last Name or First Name. The criteria can be "is", "starts with", "ends with" or "contains." You can add more than one search criteria (the below example shows Last Name followed by First Name). The Match Criteria can be set to "All" (meaning both criteria combined) or "Any" (match either/or).



Use Policies and Guidelines

Standard Detention and Arrest Policies Prevail

Person detained has no proof of ID or is unwilling to provide proof.

Probable Cause to arrest is present where facial recognition merely provides more efficient method than arresting and transporting to jail for fingerprint or other means of identification.

TACIDS is not an evidentiary tool. It is a means of providing possible identity, much like carrying a printed poster of a wanted person and doing a visual comparison to persons. Officers must make subjective decision on potential ID match and then follow up with traditional positive ID methods.

Tips for best results

When submitting Probe image, check the image quality, lighting and angle to insure best result.

Don't assume that a high confidence score is a match. Do a thorough visual comparison.

Don't assume that a low confidence score is not a match. The scores are partially based on image quality.

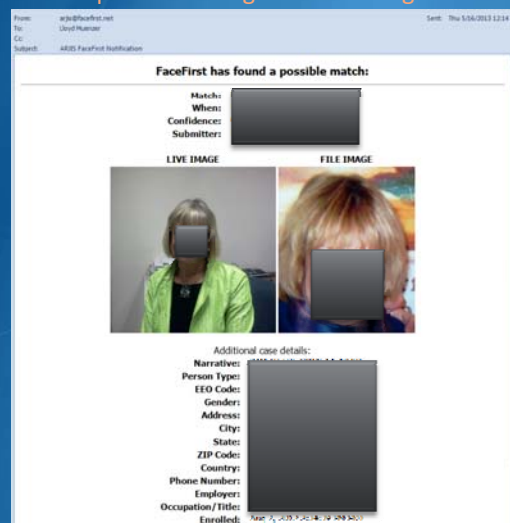
When enrolling new 'Cases' into the system (where no match exists), indicate within the data fields how the person identified themselves and under what circumstances. This will help the next person who contacts the same subject. The booking process, though not infallible, is still the best ID method.

All uses of the system are subject to audit



Email Alerts

Alerts can be sent to specific investigators when high confidence match occurs



TACIDS Success Stories

More than 1,000 positive matches since system was enabled in September 2012
Numerous arrests of wanted felons and parolees at large are due to TACIDS

TACIDS Identifications		Probe Image	File Image	DOB	Booking Charges
Timestamp	Confidence				
Aug 20, 2012 6:03:13 PM UTC	99.99%				
Aug 20, 2012 6:09:09 PM UTC	99.90%				
Aug 21, 2012 4:49:36 PM UTC	99.95%				
Dec 11, 2012 2:40:42 PM UTC	100.00%				

TACIDS Success Stories

San Diego Sheriff's Department

On 4/11/2013, 2 suspects encountered in unincorporated Escondido (Sheriff's San Marcos beat) gave false verbal identifying information (using real family member information). San Marcos Deputy Vories assisted with the use of his TLO tablet and TACIDS software to obtain the true identity of both suspects, who were subsequently arrested and charged with 529.3 PC (false personation).

San Diego State University Police Department

I wanted to give you an update on the ARJIS phone. We have had several success stories in identifying folks that were giving false names since the test program started. I have also had success with having officers email me a photo and running it that way. I just wanted to let you know this technology has been great for us, and it has helped us multiple times.

TACIDS Success Stories

National City PD (note between detectives)

Just wanted to drop you a note on how the facial recognition worked yesterday. Right after our weekly investigations' meeting I was assisting other detectives on a follow up of a kidnapping / robbery. We ended up at the suspect's house and contacted numerous people. I contacted two people who were not involved but were in the suspect's apartment. One had ID and had a PAL warrant and was immediately arrested. The other person, a female, had no ID and gave the name of a real person in AZ. It was obvious this female had been arrested before but the record's check showed no hits of a criminal record.

At this point in the investigation she was not a suspect in the kidnapping and we did not have anything else on her....we knew she was lying about her identity and were running out of detention time. I sent you the photo of her and within a couple of minutes we had her identified and learned she was a parolee at large. She was arrested for the warrant and identity theft...very helpful tool.



Security Requirements

- Security must not interfere with the functionality of the device.
- Configured to deny the ability to store potentially sensitive data on the device.
- Must meet CJIS criteria for Firewall, Encryption and Virus Protection.
- Remotely manageable, with the device configuration protected against changes and unauthorized configurations.
- FIPS 140-2 Encryption Standards



27

Remote Secure Management

Allows ARJIS staff to assist remotely. Application upgrades, troubleshooting, disable if lost or stolen, etc.



Device Name	Main Battery Status	Memory	Storage
Android 00064	94%	203 / 445 MB	54 MB / 2.0 GB
Android 00070	90%	124 / 445 MB	63 MB / 2.0 GB
Android 00072	90%	113 / 445 MB	52 MB / 2.0 GB
Android 00079	97%	110 / 445 MB	57 MB / 2.0 GB
Android 00089	47%	111 / 445 MB	58 MB / 2.0 GB
Android 00097	11%	111 / 445 MB	59 MB / 2.0 GB
Android 00103	96%	112 / 445 MB	57 MB / 2.0 GB

Touch and hold selection
For option to open in new
browser window. This will
Allow multiple apps to run
simultaneously.

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