



Sept. 04		<b>NIJ</b>
Solicitation		
Fast Capture Fingerprint/Palm Print Technology		

**Notice:**

You *must* submit your application using the Office of Justice Programs' automated Grants Management System. Paper applications will not be accepted. We suggest you begin the process as soon as possible. To start the process, go to <http://www.ojp.usdoj.gov/fundopps.htm>.

**Deadline:**

**November 8, 2004  
8 p.m. eastern time**

SL 000673

**U.S. Department of Justice**  
**Office of Justice Programs**  
810 Seventh Street N.W.  
Washington, DC 20531

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**Office of Justice Programs**  
**National Institute of Justice**  
<http://www.ojp.usdoj.gov/nij>

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# Fast Capture Fingerprint/Palm Print Technology

## I. Introduction

The National Institute of Justice (NIJ) is the research, development, and evaluation agency of the U.S. Department of Justice. NIJ provides objective, independent, evidence-based knowledge and tools to enhance the administration of justice and public safety. The Institute solicits proposals to inform its search for the knowledge and tools to guide policy and practice.

With this solicitation, NIJ, on behalf of itself; the U.S. Departments of Defense, Homeland Security, and State; and other Department of Justice agencies, including the Federal Bureau of Investigation (FBI), the Drug Enforcement Administration, and the Justice Management Division, is seeking proposals to improve and advance the current state of technology for the capturing of 10 rolled-equivalent fingerprints and/or palm prints. In the past, Congress has authorized and required various types of background screenings using Federal databases in a wide variety of contexts in an attempt to prevent terrorism and crime. For example, background screening is performed on persons who seek employment in positions of trust in government or the private sector, persons who seek or have access to dangerous materials or instrumentalities, and aliens seeking entry into the country. In certain checked databases, records are supported by fingerprints in order to positively identify the person to whom the records pertain. Thus, in screening persons to determine whether they have a record in these databases, the fingerprints of the person screened must be captured in order to match the screened person to a record. Such fingerprints may also yield matches to latent fingerprint impressions collected for criminal justice or national security purposes.

As crime prevention and national security remain a top priority, requirements for the use of friction ridge detail information for the identification of latent impressions and for background checks have increased and can be expected to continue to increase in the future. Yet, both the existing use and the potential for expanded use of these types of background checks and identifications are limited by available technology and infrastructure designed to capture the fingerprint friction ridge detail that enables searches of the databases. New technology with much greater convenience, speed, reliability, affordability, and accuracy must quickly be developed to improve our Nation's ability to meet these screening requirements.

**Due date:** The due date is listed on the cover of this announcement and on the NIJ Web site at <http://www.ojp.usdoj.gov/nij/funding.htm>. Extensions to the deadline are generally not granted.

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**Page limit:** The program narrative section of your proposal must not exceed 30 double-spaced pages in 12-point font with 1-inch margins. Tables, charts, figures, appendixes, and government forms do not count toward the 30-page limit.

**Reasons for rejection:** NIJ may reject applications that are incomplete, do not respond to the scope of the solicitation, do not comply with format requirements, or are submitted after the deadline. No additions to the original submission are allowed.

**How to submit proposals to NIJ:** Complete details about how to apply for funding are in “NIJ Guidelines for Submitting Applications,” available on the NIJ Web site at <http://www.ojp.usdoj.gov/nij/funding.htm>.

## II. Proposal Topics

Fingerprints and palm prints are now and, for the foreseeable future, will be the most relied-upon biometric technology for verifying a person’s identity and positively linking persons to criminal history and other background check records. Criminal justice agencies rely on fingerprints and palm prints for positive identification to latent impressions collected as evidence at crime scenes and in processing persons through the criminal justice system. In addition, the National Crime Prevention and Privacy Compact of 1998 established a general requirement for fingerprints in support of noncriminal justice checks of the criminal history records in the FBI-maintained Interstate Identification Index System.

Existing technology provides the ability to collect and transmit fingerprint and palm print images from persons electronically. Electronic fingerprint and palm print images allow for the rapid search of prints against extremely large databases of existing fingerprint- and palm print-based records and latent impressions recovered from crime scenes. However, current technologies can be difficult to use and too often produce fingerprints and palm prints of poor quality.

Among the limitations of current technologies are the following:

- The need to have a trained technician grasp and manipulate a person’s finger or hand (frequently with multiple attempts) to successfully capture the print.
- Rolled fingerprints and palm prints can only be captured one at a time.
- Small amounts of contamination or excessively dry or moist skin can hamper or even preclude the capture of an acceptable image.
- Fingerprints and palm prints of some persons with fine or worn friction ridges cannot be captured.

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- Relative slowness, with impressions taking anywhere from 5–10 minutes or more to capture.
  - High acquisition and maintenance costs that significantly limit the widespread deployment of these technologies.

The goal of this solicitation is to fund the development and demonstration of technology that will quickly capture 10 rolled-equivalent fingerprints and/or palm prints; significantly improve the finger and palm print image quality over current technologies; reduce the failure-to-enroll rate over current technologies; and be affordable, rugged, portable, relatively unobtrusive in size, and deployable in the near future.

Successful applicants must be able to produce a working device meeting the requirements of this solicitation and suitable for independent testing.

### III. General Requirements and Guidance

This section describes the main requirements for submitting your proposal. Complete instructions are in “NIJ Guidelines for Submitting Applications,” available on the NIJ Web site at <http://www.ojp.usdoj.gov/nij/funding.htm>.

- A. Submit applications online:** Paper applications are not accepted. Applications must be submitted through the Office of Justice Programs’ online Grants Management System. NIJ suggests you begin the process early, especially if this is the first time you have used the system. To begin, go to <http://www.ojp.usdoj.gov/fundopps.htm>. There are three types of documents that can be uploaded to an application package: PDFs, Word Documents, and Text Documents.
- B. Relevance of the project for policy and practice:** Higher-quality proposals clearly explain the practical implications of the project. They connect technical expertise with policy and practice. To ensure that the project has strong relevance for policy and practice, some researchers and technologists collaborate with practitioners and policymakers. You may include letters showing support from practitioners, but they carry less weight than clear evidence that you understand why policymakers and practitioners would benefit from your work and how they would use it. While a partnership may affect State or local activities, it should also have broader implications for others across the country.
- C. Equal opportunity for all applicants:** It is OJP policy that faith-based and community organizations that statutorily qualify as eligible applicants under OJP programs are invited and encouraged to apply for awards. Faith-based and community organizations will be considered for an award on the same basis as any other eligible applicants and, if they receive awards, will be treated on an equal basis with nonfaith-based and community

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organization grantees in the administration of such awards. No eligible applicant or grantee will be discriminated against on the basis of its religious character or affiliation, religious name, or the religious composition of its board of directors or persons working in the organization.

- D. Cofunding is not required:** You are not required to combine NIJ funds with other funds (for example, you do not need matching funds), but if you intend to use multiple funding sources to support your proposed effort, the budget you submit must show the other funds.
- E. Number of grants to be awarded:** NIJ's grant award process is highly competitive. The number of awards to be made depends on the availability of funds and the number and quality of applications received.
- F. When awards will be made:** The review and approval process takes about 6 months. Therefore, you should not propose to begin work until at least 6 months after the deadline on the cover of this solicitation. Also, you should not expect to receive notification of a decision for at least 6 months after that date. Lists of awards are updated regularly on NIJ's Web site at <http://www.ojp.usdoj.gov/nij/funding.htm>.
- G. Financial audits are required:** If your organization spends \$500,000 or more of Federal funds during the year, you will be required to submit an organization-wide financial and compliance audit report before any award is made. The audit must be performed in accordance with the U.S. General Accounting Office Government Accounting Standards and must conform to Chapter 19 of the Office of Justice Programs' *Financial Guide* (available at <http://www.ojp.usdoj.gov/FinGuide>). You may include the costs of complying with these audits in the proposed budget submitted as part of your application. Detailed information regarding the independent audit is available in Office of Management and Budget Circular A-133 (available at <http://www.whitehouse.gov/omb/circulars>).
- H. An environmental assessment may be required:** All award recipients must comply with the National Environmental Policy Act (NEPA). To ensure NEPA compliance, NIJ may require some award recipients to submit additional information.
- I. Protection of confidentiality:** Federal regulations require applicants for NIJ funding to outline specific procedures for protecting private information about individuals as part of the Privacy Certificate submitted with the application package. For complete details, see <http://www.ojp.usdoj.gov/nij/funding.htm>.
- J. New requirement—DUNS number:** Beginning October 1, 2003, a Dun and Bradstreet Data Universal Numbering System (DUNS) number must be included in every application for a new award or renewal of an award. The DUNS number will be required whether an applicant

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submits an application through the Office of Justice Programs' Grants Management System or using the government-wide electronic portal (<http://www.grants.gov>). **An application will not be considered complete until a valid DUNS number is provided by the applicant.** Individuals who would personally receive a grant or cooperative agreement from the Federal government are exempt from this requirement.

Applicants can receive a DUNS number at no cost by calling the dedicated toll-free DUNS number request line at 1-866-705-5711.

If you have questions, contact the Office of Justice Programs' Office of the Comptroller's Customer Service Center at 1-800-458-0786.

**K. Funds cannot be used to lobby:** Under the Anti-Lobbying Act (18 U.S.C. § 1913), grantees generally may not use funds to support the enactment, repeal, or modification of any law, regulation, or policy at any level of government. For the complete rules and regulations, see "NIJ Guidelines for Submitting Applications" at <http://www.ojp.usdoj.gov/nij/funding.htm> and OJP's *Financial Guide* at <http://www.ojp.usdoj.gov/FinGuide>.

**L. What will not be funded:** Typically, NIJ *does not* fund the following:

1. Provision of training or direct service.
2. Proposals primarily to purchase equipment, materials, or supplies. (Your budget may include these items if they are necessary to conduct applied research, development, demonstration, evaluation, or analysis, but NIJ does not fund proposals that are primarily to purchase equipment.)
3. Basic or pure research.
4. Currently available commercially-off-the-shelf (COTS) and/or government-off-the-shelf (GOTS) technology. The proposal needs to be an advancement on the current state of the technology.

**M. Call for assistance:**

1. For technical guidance about using the Grants Management System, call the hotline at 1-888-549-9901.
2. For questions about this solicitation, the research being solicited, or other NIJ funding opportunities, contact the U.S. Department of Justice Response Center at 1-800-421-6770.

## IV. Selection Criteria

NIJ is firmly committed to the competitive process in awarding grants. All proposals are subjected to an independent peer-review panel evaluation. External peer-review panelists

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consider both technical and programmatic merits. Panelists are selected based on their expertise in subject areas pertinent to the proposals.

Peer-review panelists evaluate each proposal and give their assessments to NIJ. NIJ staff then recommend to the NIJ Director which proposals are most worthy of an award. The Director makes final award decisions.

Successful applicants must demonstrate the following:

**A. Understanding of the problem and its importance.**

Applicants must propose to develop a working device that will record 10 rolled-equivalent fingerprints or that will record 10 rolled-equivalent fingerprints and both palm prints. Successful applicants will be required to make the device they propose to develop available for independent testing at the end of the award period. The device to be developed must have the following capabilities:

1. Capture and record the true and accurate friction ridge skin detail of a person on whom the device is used.

2. Speed of capture:

For devices designed to record 10 rolled-equivalent fingerprints: 15 seconds or less for all 10 fingers.

For devices designed to also fully record palm prints (i.e., the entire palmar friction ridge skin area, including the extreme sides of the palms and the extreme tips, sides, and lower joints of the fingers): 1 minute or less for both palms.

3. For devices designed to record 10 rolled-equivalent fingerprints: Meet or exceed the image specification of the FBI and the National Institute of Standards and Technology (NIST) (see FBI CJIS Appendix F, EFTS Version 7 and NIST M1 Standard, respectively), but in no instances less than 500 pixels per inch (ppi). Note: If the applicant's proposed technology cannot meet the requirements stated in Appendix F and M1 because the type of technology proposed is different than that described in the standards, then the applicant should describe in detail the reasons and how the proposed technology will capture and produce true and accurate image quality of the three levels of friction ridge detail.

4. For devices designed to fully record palm prints: Meet or exceed 1000 ppi as well as other information noted in the FBI and NIST image specification (FBI CJIS Appendix F, EFTS Version 7 and NIST M1 Standard, respectively). Note: If the applicant's proposed technology cannot

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meet the requirements stated in Appendix F and M1 because of the type of technology being proposed, then the applicant needs to describe in detail the reasons and how the proposed technology will capture and produce true and accurate image quality of the three levels of friction ridge detail.

FBI CJIS Appendix F can be found at <http://www.fbi.gov/hq/cjisd/iafis/efts70/appendixf.htm>.

NIST M1 Standard can be found at [http://www.incits.org/tc\\_home/m1.htm](http://www.incits.org/tc_home/m1.htm).

5. Be designed so as to eliminate sequencing errors.
6. Provide for the ability to identify specific finger position and a mechanism to handle non-recordable information (e.g., bandages, worn surfaces, amputations).
7. Possess maintenance and calibration requirements that have minimal operational impact.
8. Output information formatted to meet the ANSI/NIST ITL 1-2000 standard.

ANSI/NIST ITL 1-2000 Standard can be found at

[ftp://sequoyah.nist.gov/pub/nist\\_internal\\_reports/sp500-245-a16.pdf](ftp://sequoyah.nist.gov/pub/nist_internal_reports/sp500-245-a16.pdf).

Special consideration will be given for devices that can demonstrate one or more of the following:

- Subsequent recordings within 5 seconds for devices designed to record ten rolled-equivalent fingerprints.
- Subsequent recordings within 20 seconds for devices designed to fully record palm prints.
- Ability to capture images without operator manipulation of the hands of the person whose fingerprints or palm prints is to be captured.
- Ease of operation (reducing training complexity and costs).
- Immediate feedback to the operator as to the quality of the captured fingerprints or palm prints (whether a “Go/No-Go” or qualitative assessment).
- Ability to withstand outdoor use.
- Ability to be used for access control purposes (e.g., unattended operation, liveness testing).

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**B. Quality and technical merit.**

1. Awareness of the state of current research or technology.
2. Soundness of methodology and analytic and technical approach.
3. Feasibility of proposed project and awareness of pitfalls.
4. Innovation and creativity (when appropriate).

**C. Impact of the proposed project.**

1. Potential for significant advances in scientific or technical understanding of the problem.
2. Potential for significant advances in the field.
3. Relevance for improving the policy and practice of criminal justice and related agencies and improving public safety, security, and quality of life.
4. Affordability and cost-effectiveness of proposed end products, when applicable (e.g., purchase price and maintenance costs for a new technology or cost of training to use the technology).
5. Perceived potential for commercialization and/or implementation of a new technology (when applicable).

**D. Capabilities, demonstrated productivity, and experience of applicants.**

1. Qualifications and experience of proposed staff.
2. Demonstrated ability of proposed staff and organization to manage the effort.
3. Adequacy of the plan to manage the project, including how various tasks are subdivided and resources are used.
4. Successful past performance on NIJ grants and contracts (when applicable).

**E. Budget.**

1. Total cost of the project relative to the perceived benefit.
2. Appropriateness of the budget relative to the level of effort.
3. Use of existing resources to conserve costs.

**F. Dissemination strategy.**

1. Well-defined plan for the grant recipient to disseminate results to appropriate audiences, including researchers, practitioners, and policymakers.
2. Suggestions for print and electronic products NIJ might develop for practitioners and policymakers.

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## V. Requirements for Successful Applicants

If your proposal is funded, you will be required to submit several reports and other materials as follows:

- A. Final report:** The final report should be a comprehensive overview of the project and should include a detailed description of the project design, data, and methods; a full presentation of scientific findings; and a thorough discussion of the implications of the project findings for criminal justice practice and policy. It must contain an abstract of no more than 400 words and an executive summary of no more than 2,500 words.

A draft of the final report, abstract, and executive summary must be submitted 90 days before the end date of the grant. The draft report will be peer reviewed upon submission. The reviews will be forwarded to the principal investigator with suggestions for revisions. The principal investigator must then submit the revised final report, abstract, and executive summary by the end date of the grant. The abstract, executive summary, and final report must be submitted in both paper and electronic formats.

For evaluation studies, the report should include a section on measuring program performance. This section should outline the measures used to evaluate program effectiveness, modifications made to those measures as a result of the evaluation, and recommendations regarding these and other potential performance measures for similar programs. (This information will be particularly valuable to NIJ and other Federal program agencies in implementing performance measures for federally funded criminal justice programs.)

- B. Interim reports:** Grantees must submit quarterly financial reports, semi-annual progress reports, and a final progress report. Future awards and fund drawdowns may be withheld if reports are delinquent. Post-award reporting requirements are described in “NIJ Guidelines for Submitting Applications,” available at <http://www.ojp.usdoj.gov/nij/funding.htm>.
- C. Materials concerning protection of confidential information and human subjects:** Recipients of NIJ research funds must comply with Federal regulations concerning the protection of private information about individuals. Recipients also must comply with Federal regulations concerning protection of human subjects. In general, all research involving human subjects that is conducted or supported by NIJ funds must be reviewed and approved by an Institutional Review Board before Federal funds are expended for that research. NIJ may also ask grant recipients for additional information related to privacy and human subjects testing.

Additional general information regarding NIJ’s requirements for privacy and protection of

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human subjects appears in “NIJ Guidelines for Submitting Applications,” available at <http://www.ojp.usdoj.gov/nij/funding.htm>. Complete information about NIJ’s requirements can be found at <http://www.ojp.usdoj.gov/nij/humansubjects>.

- D. Electronic data:** Some grant recipients will be required to submit electronic data and supporting documentation, such as a codebook or dictionary, capable of being re-analyzed and used by other researchers. The materials must be submitted by the end date of the grant. Grant applicants should ensure that the proposed timeline and budget accommodate these requirements.
- E. Performance guidelines:** NIJ collects data to comply with the Government Performance and Results Act (GPRA), Public Law 103–62. Generally, these data are contained in a grantee’s final report (discussed in Section V of this solicitation), but NIJ may request additional information to facilitate future planning and to ensure accurate reporting to Congress and others on the measurable results of grants. The results NIJ seeks to achieve through this program is the development of technology that will quickly capture the rolled-equivalent fingerprint and/or palm print; significantly improve the finger and palm print image quality over current technologies; reduce the failure-to-enroll rate over current technologies; and be affordable, rugged, portable, relatively unobtrusive in size, and deployable in the near future. Performance under this solicitation will be measured by whether and to what extent successful applicants develop a device that meets the criteria described in Part IV-A of this solicitation. For complete details, see “NIJ Guidelines for Submitting Applications,” available at <http://www.ojp.usdoj.gov/nij/funding.htm>.

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## **Tips for Submitting Your Application**

1. Begin the application process early—especially if you have never used the online Grants Management System before. NIJ will not accept applications received after the closing date and time listed on the cover. To start the process, go to—  
<http://www.ojp.usdoj.gov/fundopps.htm>.
2. Be sure your application package includes—
  - Abstract of no more than 400 words.
  - Complete budget, including detailed worksheet and narrative.
  - Program narrative.
3. Review “NIJ Guidelines for Submitting Applications” for complete instructions, available at <http://www.ojp.usdoj.gov/nij/funding.htm>.
4. Although your proposal may budget for the purchase of equipment if the equipment is necessary to conduct the project, NIJ will not fund applications that are primarily to purchase equipment, materials, or supplies.
5. Call for help:
  - For technical guidance about the Grants Management System, call the hotline at 1–888–549–9901.
  - For questions about this solicitation, the research being solicited, or other NIJ funding opportunities, contact the U.S. Department of Justice Response Center at 1–800–421–6770.

View or print a copy of this document from the NIJ Web site (<http://www.ojp.usdoj.gov/nij/funding.htm>) or request one by calling NCJRS at 1–800–851–3420 or e-mailing [askncjrs@ncjrs.org](mailto:askncjrs@ncjrs.org).

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NIJ is a component of the Office of Justice Programs, which also includes the Bureau of Justice Assistance, the Bureau of Justice Statistics, the Office of Juvenile Justice and Delinquency Prevention, and the Office for Victims of Crime.