DEPARTMENT OF HOMELAND SECURITY
U.S. Customs and Border Protection

Request for Information

On The Move Biometric Facial Comparison Technology

Issuance Date: August 5, 2024

1.0   PURPOSE OF REQUEST FOR INFORMATION

Synopsis: This is a request for information (RFI) only. This is an RFI released pursuant to FAR 15.201(e). This RFI is solely for information, planning purposes, and market research only; it does not constitute a Request for Proposal (RFP), Request for Quotation (RFQ), or a promise to issue an RFP or RFQ. This RFI does not commit the Government to contract for any supply or service. U.S. Customs and Border Protection (CBP) will not pay for any costs associated with responding to this RFI. All costs will be solely at the interested party's expense. Not responding to the RFI does not preclude participation in any future RFP or RFQ. If CBP releases a solicitation, it will be posted on the SAM.gov website. CBP advises interested parties to monitor this website for any information that may pertain to this RFI. The information provided in this RFI is subject to change and is not binding on the Government. All responses become the property of the Federal Government upon submission and will not be returned to vendors.

Purpose: This RFI seeks to obtain information and/or recommendations for on the move biometric facial capture at CBP entry points to confirm the identity for traveler entry into the United States in high throughput border environments. The offerings should meet a desired minimum threshold determined by U.S. Customs and Border Protection (CBP) and meet technical and operational requirements.

2.0   BACKGROUND AND DESCRIPTION OF REQUIREMENTS

Background: U.S. Customs and Border Protection is one of the major components of the Department of Homeland Security (DHS) charged with protecting America's borders from terrorism, human and drug smuggling, illegal migration, and agricultural pests while simultaneously facilitating the flow of legitimate travel and trade. As the nation's single, unified border agency, CBP represents the first line of defense of America's borders. CBP agents frequently interact with the public in a variety of operational environments.

CBP is interested in technological solutions that enable travelers to proceed in a continuous flow through high-throughput lanes by using biometric facial capture to support risk-based segmentation of travelers.

The image captured by the solution will be passed to a CBP's Traveler Verification Service (TVS)[1] or other CBP system to be compared with flat two-dimensional travel document source photo(s) on file in Government holdings. TVS is a facial biometric matching service that receives a temporary gallery of photographs, matches those photos against travel document photos and unique identifiers (UIDs) on file, verifies travelers' identities, and responds within seconds with match results.

---

[1] The TVs Privacy Impact Assessment can be downloaded here:
https://www.dhs.gov/sites/default/files/publications/privacy-pia-cbp056-tvs-january2020_0.pdf

Description of Objectives: The goal of the solution is to implement a continuous flow of travelers to the greatest extent possible while maintaining the integrity of the CBP inspection process. By processing travelers on the move and without the need to stop, while properly segmenting travelers, CBP's objective is to reduce processing times, improve the traveler experience, and increase throughput.

CBP is interested in capabilities that:
1. Capture facial images of travelers at speed while they are in motion (on the move and without the need for the traveler to stop) and sends images to internal CBP systems or directly to CBP's TVS system for comparison against travel document source photo(s) on file in Government holdings;
2. Receive a matching response from CBP's system; and,
3. Include options for visual notification of the response from the CBP system to the CBP Officer on duty.

CBP is not looking for matching and enrollment solutions, as those capabilities will be handled by CBP's backend technology.

Requirements: CBP envisions a solution the meets the following requirements:
1. Ensure image capture of travelers at speed.
2. Prevents capture of facial images of people outside of the designated capture area.
3. Prevents capture of non-live facial images, such as photographs on t-shirts or hats.
4. Eliminates duplicate images of the same traveler – only sends one captured facial image to CBP system.
5. Ensures all facial images of travelers in the designated capture area meet CBP's Traveler Verification Service's (TVS) photo quality threshold required for biometric comparison (see "TVS Photo Specifications for Facial Matching", below.
6. Provide visual notification of biometric match or no-match results to the CBP Officer for use in admissibility decision.
7. Provide visual notification of traveler results in the order in which travelers are approaching the CBP Officer, including if the travelers have repositioned themselves since initial image capture.
8. Provides directional guidance to the traveler based on the response received from CBP systems.
9. Functions on a CBP network and is interoperable with CBP software systems.
10. Does not store images, including on local devices.
11. Ensures privacy regulations of travelers and non-travelers.
12. Compliant with cybersecurity requirements per the DHS Information Security Program for DHS sensitive systems and systems that process sensitive information for DHS.[2] [3]
13. Provide a user interface that clearly communicates traveler expectations to achieve a TVS quality photograph capture at walking speed.

Challenges and Constraints: The solution would need to account for the following challenges and constraints:
1. Artificial lighting and variances in lighting.
2. Traveler's facial occlusions (i.e. facial masks, glasses, hats, etc.).
3. Variances in travelers' heights (i.e. children, travelers in wheelchairs, etc.)
4. The TVS photo gallery is comprised of two-dimensional photos.
5. The need to communicate a response to CBP for proper traveler segmentation.

---

[2] DHS Sensitive Systems Policy Directive 4300A:
https://www.dhs.gov/sites/default/files/publications/Sensitive%20Systems%20Policy%20Directive%204300A.pdf
[3] DHS 4300A Sensitive Systems Attachments: https://www.dhs.gov/publication/dhs-4300a-sensitive-systems-handbook

TVS Photo Specifications for Facial Matching: The identity service requires a quality photo be submitted as part of the request message. A facial recognition quality photo shall have reasonable compliance with the ANSI/NIST ITL 1-2011 Type 10 standards and subject acquisition profile levels 10-20 for frontal images, with the only allowable departure from the standard's requirements being the presence of mild pose variations around frontal.

The photo shall include the following characteristics:
1. A JPEG or JPEG 2000 file of no more than 150KB.
2. Minimum resolution of 480 pixels by 760 pixels.
3. A distance of at least 80 PX between the eyes.
4. Eye roll of no more than 30 degrees.
5. A front-facing photograph with:
    a. Tilt, no more than ± 5%
    b. Roll, no more than ± 15%
    c. Pan, no more than ± 15%
6. Uniform Illumination
    a. Exposure
        i. The average of 8-bit RGB components within each area shall fall between 105 and 125 with a standard deviation of ± 10. Furthermore, for every area examined, the maximum difference between the means of any two of the RGB components shall not exceed 10.
        ii. By examining the histogram of the image, the RGB code value for a maximum of six gray patches should fall within range from 0.5 to 1.5 neutral density.
    b. Saturation
        i. For each patch of skin on the person's face, the gradations in texture shall be clearly visible. There shall be no saturation (over of under exposure) on the face.
        ii. The Δ E 1976 of each color for the sRGB color space is to be less than 10 with CIELab values.
7. No grayscale photos.
8. Minimal Noise
    a. Peak Signal to Noise Ratio must be greater than or equal to 53 dB.
9. Minimal Blur
    a. Photos with defocus blur approximating Gaussian blur must have a radius of less than 4 sigma.
    b. Photos with motion blur must have a measured displacement of less than 9 pixels.

Note: the objectives and requirements listed in this RFI do not constitute final CBP requirements and may be adjusted prior to a potential future RFQ. Additionally, the measures listed, and other details are notional and do not constitute RFP measures. The listed requirements are for informational purposes only - vendors should not consider them as a final representation of CBP's requirements.

3.0   RESPONDING TO THIS RFI

Companies that can satisfy all aspects of the above are invited to submit information describing their ability to meet the requirements. CBP requests that vendors answer the following questions explicitly in a response to be submitted following the directions outlined in Section 4.0 (below).

1. **Cover Page**
Interested parties shall ensure the following contact and company information is provided:
   a. Company Name, mailing address, DUNS number, and website address;
   b. Company socio-economic status;
   c. Name, title, phone number and e-mail of designated point of contact (POC);
   d. Business size based on North American Classification System (NAICS) code 541512;
   e. Brief overview of company history;
   f. Federal contract(s) available for use;
   g. Number of years in business;
   h. Number of employees.

2. **Operational Questions:**
   a. Describe how your company would enable CBP to implement the strategic vision for "on the move" entry and streamline the traveler experience with a continuous flow through designated lanes.
   b. How do recommend your image capture devices be placed so as not to be an obstruction to the continuous flow of travelers?
   c. How will your solution provide visual notification(s) of biometric match or no-match results to CBP Officers for use in admissibility decisions?
      i. Describe the operational features of this notification – how is the information provided to the officer?
      ii. How does your solution indicate to the officer which travelers have "non-passage granted" status?
   d. Describe how your solution provides visual notification of traveler results in the order in which travelers are approaching the CBP Officer, including if the travelers have repositioned themselves since initial image capture?
   e. From a technological, operational, and human behavior perspective, how do you recommend segmenting out travelers who need to see a CBP Officer (i.e. control points, access points, etc.) without compromising the continuous flow of travelers?
      i. Describe how your solution supports your recommendation.

3. **Technical Questions**
   a. Describe your company's image capture device specifications – both hardware, mounting and space requirements, as well as back-end technology solution architecture.
   b. Is your company's image capture device capable of remote adjustment, directional, and zoom control (i.e. pan/tilt/zoom) to capture travelers' images?
   c. Does your solution require custom development by CBP to receive and process your images?
   d. Does your company's solution include any equipment or parts that are manufactured by any company that are banned by statute or regulation from being purchased by a Federal Government agency or is suspended or debarred from Federal contracts?
   e. How are images captured by your solution (still, streaming, other?).
   a. Can your firm's solution capture multiple unique images for one or more travelers?
   b. Does your company's solution store images on the capture device?
   c. Can your company's image capture device select and send the best quality image from all images captured? How long does this process take?
      i. If you answered "yes" to the above, how does your solution do this without maintaining the images of those previously photographed?
   d. What is your company's solution rate of photo transmission (in milliseconds)?
   e. What are your company's solution power, lighting, and bandwidth requirements?
   f. What is the full list of image data format(s) that your company's capture solution utilizes (for example, .jpg, .gif, etc.)?

g. Provide a list of specific technological considerations for successful integration of your company's solution with CBP systems (Linux, Java, .net, etc.).
h. Provide a list of any additional optional products or solutions that would enhance the image capture of travelers.
i. Describe how your company's solution meets established DHS security requirements, directives, and guidelines.

4. **Environmental & Human Factor Questions**
   a. Can your company's solution be ruggedized to withstand varying elemental conditions?
   b. Describe how artificial or variances in lighting impacts your company's image capture and quality.
   c. Can your company's solution filter out non-human images (i.e. filter images of people from clothing, etc.)
   d. Can your company's solution integrate more than 1+ capture device at different angles to capture travelers on approach?

5. **Cost and Delivery Questions**
   a. What additional software or services are required to complement your company's' solution to meet the goals of this program?
   b. What facility or infrastructure is required to implement your company's' solution to meet the goals of this program?
   c. What is the timeline to delivery and implementation for your solution?

6. **Prior Performance Questions**
   a. Has your company's solution been provided elsewhere? If so:
      i. What is the average volume handled by your solution?
      ii. What is the technical readiness level of your solution?
      iii. Describe the performance results of your solution.
      iv. What methods and requirements would be needed for scaling your solution nationwide?
   b. Has your solution had a previous connection to TVS in a field environment?

7. **Follow Up Questions and No-Cost Vendor Demonstration**
   a. Are you interested in receiving follow-up questions from the Government regarding listed capabilities?
   b. Please submit a video demonstration of your technology for the Government, at no cost to CBP, as part of your RFI response.

4.0 SUBMISSION INTRUCTIONS

Interested vendors should submit responses prior to 5:00 PM ET on September 2, 2024, following the process described below:
- Send an email response to aga.frys@cbp.dhs.gov using the email subject line: "[Vendor Name] On the Move Biometric Facial Comparison RFI Response". Only electronic submissions will be accepted.
- The body of the email should list the total number of files being submitted along with a listing of each attachment.
- Responses to the questions in Section 3.0 (above) should be provided in a Microsoft Word document attachment no longer than 15 pages with no smaller than 10 pt. font.

- All additional documentation requested in the questions above and referenced in vendor responses should be attached to the email.
- Electronic attachments larger than 10 MB shall be broken down into multiple files with no one file exceeding 10 MB.

The Government will review all RFI submissions upon receipt and will seek further clarification from respondents, if necessary.

Questions for the Government: Questions for the government regarding this RFI may be submitted prior to 5:00 PM ET on August 19, 2024 at aga.frys@cbp.dhs.gov, using the subject line - "Questions - [Vendor Name] On the Move Biometric Facial Comparison RFI Response". The government will respond to applicable questions prior to 5:00 PM ET on August 26, 2024. CBP will not respond to any media or other unrelated inquiries sent to the inbox.

Confidentiality: The Government will not publicly disclose vendor proprietary information obtained during this effort. Consistent with the Government's legal obligations, CBP will safeguard information identified by a respondent as "Proprietary or Confidential" to the fullest extent possible. Any information submitted by interested parties in response to this RFI may be shared by the Government with support contractors hired to assist the Government. This includes information marked as limited right data, restricted computer software, subject to limited rights, or subject to restricted rights. The Government's support contractors that have been, or will be hired, are required to sign non-disclosure agreements restricting them from unauthorized use and disclosure of information that may be proprietary to third party companies. By submitting information in response to this RFI, respondents are agreeing to allow the Government to share the information they submit with the Government's support contractors who are, or will be, covered by a non-disclosure agreement.