Lane-Based Self-Service Screening

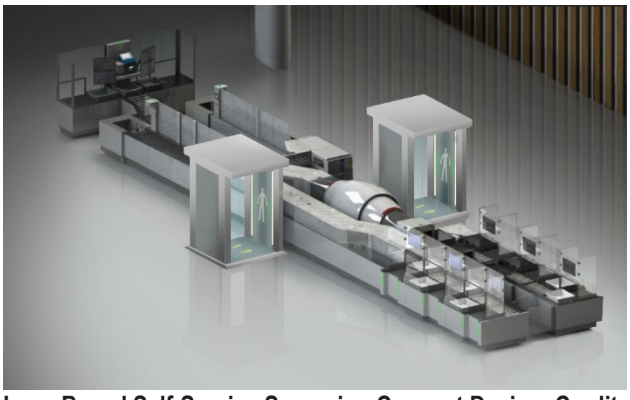
Science and Technology

AVIATION SECURITY REIMAGINED

The Department of Homeland Security (DHS) Science and Technology Directorate (S&T) is innovating the airport checkpoint with the DHS Transportation Security Administration (TSA) to enhance the passenger experience.

Passenger self-service screening is laying the groundwork for a reimagined airport checkpoint with technology that allows passengers to complete the airport screening process with minimal intervention from Transportation Security Officers (TSOs) while they maintain oversight over the process.

The S&T Screening at Speed Program, working with the TSA Innovation Task Force, is developing a self-service screening system for PreCheck® travelers. The aim is to provide passengers more autonomy, reduce pat downs and bag inspections, and give TSOs more time to assist passengers.



Lane-Based Self-Service Screening Concept Design. Credit: Vanderlande Inc.

LANE-BASED SELF-SERVICE SCREENING

In 2021, S&T awarded a contract to Vanderlande Industries Inc. to develop and test a self-service screening system. Vanderlande created a lane-based solution that primarily employs commercial-off-the-shelf technologies. In 2023, the system was tested at the TSA Systems Integration Facility (TSIF) in preparation for an airport demonstration in 2024.

The system uses a dual-lane design that allows passengers to remove their carry-on items on both sides of the screening system, providing the efficiency of two conventional lanes in one. It consists of six stations, three on either side, where passengers can remove their carry-on items for screening. Passengers are prompted through the steps via individual video screens. An operator assist button also allows passengers to talk to a live TSO if needed. Carry-on items are then funneled through an integrated conveyor belt system that includes a primary screening system and a secondary screening system to resolve alarms efficiently.

While carry-on items are being cleared, passengers are screened in one of two portals on either side of the lane. An automatic door opens, and an integrated video screen prompts passengers through the steps. If the system alarms, the entry door re-opens, and passengers place the items they forgot to remove in a bin at the screening station for review. Once a passenger is cleared, the automatic exit door opens, and they can collect their carry-on items and proceed to their flight.

BENEFITS OF A LANE-BASED DESIGN

The current prototype is similar in size to screening systems already in airport checkpoints and could be substituted in without having to drastically modify the checkpoint layout.

The system is currently installed at the Innovation Checkpoint at Harry Reid International Airport in Las Vegas, Nevada, to collect feedback from TSOs and passengers. Results of this demonstration will inform decisions regarding next steps for the self-service screening concept and, ultimately, potential adoption.

RECENT ACCOMPLISHMENTS

- Tested and demonstrated a lane-based self-service screening prototype at TSIF. (FY23 Q3)
- Installed a lane-based self-service screening prototype in an airport and passed inspections for a pilot. (FY24 Q2)

UPCOMING MILESTONES

- Demonstrate a lane-based self-service screening system at Harry Reid International Airport TSA Innovation Checkpoint to collect feedback from passengers and TSOs. (FY24 Q2)

INDUSTRY PARTNERS

- Vanderlande Industries Inc., Marietta, GA
- Analogic Corporation, Peabody, MA
- Rohde & Schwarz USA, Inc., Columbia, MD
- dormakaba USA Inc., Columbia, MD