VOLVO

Document Number	Issue Number	Date	Page
6980-02941-01-16	1.0	19-Nov-2010	1 (9)
Author Company	Author Department, Name		Author Phone
Volvo Technology	Mike Siebert, 6980		+1 (336) 393-3171
Customer Company	Customer Name		Customer Phone
New York State DOT	Rick McDonough		+1 (518) 457-5871
Customer Contract Number	Customer Contract Start/Finish Dates		
C030588	21-Jan-2009 to 31-Dec-2010		

Report

C030588 CVII Task 3
Biometric Driver Identification

This report looks at the current state of biometric driver identification in both the public and private sectors.

Responsible	Tom Richter
Established Date	22-Feb-2010
Archived until	19-Nov-2020
Classification	OPEN

VOLVO

Document Number	Issue Number	Date	Page
6980-02941-01-16	1.0	19-Nov-2010	2 (9)
Author Company	Author Department, Name		Author Phone
Volvo Technology	Mike Siebert, 6980		+1 (336) 393-3171
Customer Company	Customer Name		Customer Phone
New York State DOT	Rick McDonough		+1 (518) 457-5871
Document Title		Type of Document	
C030588 CVII Task 3 Biometric Driver Identification		Report [21-Jan-2009 to 31-Dec-2010]	

Contents

1 General Information

This document is a summary report of research conducted on the current state of biometric driver identification in both the public and private sectors.

1.1 Document Contacts

Company	Name	Phone	Email
VTEC	Mike Siebert	+1 (336) 393-3171	mike.siebert@volvo.com
VTEC	Tom Richter	+1 (336) 393-2371	tom.richter@volvo.com

1.2 Revision History

Issue	Date	Author	Changes
1.0	11 Nov 2010	Mike Siebert	Initial

1.3 Reference Documents

[1] Contract #C030588 – PIN: CC95.07.121
Commercial Vehicle Infrastructure Integration
New York State – Department of Transportation

[2] 6980-02821-01-02 C030588 CVII Program Plan
Volvo Technology – Tom Richter
Issue 2.1 – 15 Sep 2009

1.4 Abbreviations

CDL	Commercial Drivers License
CVII	Commercial Vehicle to Infrastructure Integration
DHS	Department of Homeland Security

DOT	Department of Transportation
ECU	Electronic Control Unit
HVI	Human Vehicle Interface
N/A	Not Applicable
NYS	New York State
NYSDOT	New York State Department of Transportation
PASS ID	Providing for Additional Security in State's IDentification
VII	Vehicle to Infrastructure Integration
VTEC	Volvo Technology

2 Overview

2.1 Background

The overall scope of the NYSDOT CVII Project can be found in References [1] and [2].

The objective of Task 3 is to demonstrate a CVII Application that can immobilize a commercial vehicle until the driver's credentials are validated. For this application to be deployed, the driver's credentials must be in a government approved, standardized, machine-readable format supporting a two or three factor authentication methodology (e.g. smartcard, PIN code, and/or finger print) to positively identify the driver. Since this driver's credential does not currently exist, the Task 3 demonstration must use a simulation based on current trends and technology being developed by both the public and private sectors.

2.2 Objective

This report summarizes research performed by the Volvo team on existing public and private sector initiatives in the area of biometric driver identification that can be utilized in a wireless environment. The goal of the research is to support the selection of a good candidate to simulate for the Driver Credentials Validation Application and is not intended to be a complete, in-depth research into the subject. The research leverages the lessons learned from the I-95 Corridor Coalition's Year 13 Wireless Inspection Project.

The specific activities required for this research are:

- Evaluate the current and potential future applications of TWIC cards for commercial vehicle credentialing.
- Identify other potential approaches to driver identification currently being discussed, including any new technological developments and government initiatives.
- Select a feasible solution for implementation in the Driver Credentials Validation Application that currently holds the greatest promise for public and private sector acceptance.

2.3 Summary

Based on the research which is detailed in the following paragraphs, there does not seem to be a definitive public or private sector standard which will be imminently gaining widespread acceptance. Additionally, there are no readily identifiable biometric card readers available for a vehicular environment.

Consequently, the recommendation is that the simulated driver credentials utilize a SmartCard which only requires a simple PIN code to access the driver credentials. This simple implementation will allow validation of the driver credentials verification application without devoting a large amount of time to the implementation of an approach which might become irrelevant in the longer term.

The content of the SmartCard will consist of a field oriented text file containing the following standard CDL information:

- Name
- Date of Birth
- License Number, Class, Issuing State, Issuing Country
- License Issue and Expiration Dates
- Address, City, State, Zip, Country

3 Public Sector Research

3.1 TWIC Card

3.1.1 History

The Maritime Transportation Security Act of 2002 requires that all maritime personnel requiring unescorted access to secure areas of port facilities be issued a biometric security credential. This act resulted in the creation of the Transportation Workers Identification Credential (TWIC) card which is based on SmartCard technology. The TWIC card is a tamper-resistant credential containing the individual's picture, biographic information, and fingerprint in both printed and digitally secured forms.

3.1.2 Wireless Inspection Project

When the I-95 Corridor Coalition's Year 13 Wireless Inspection Project was developed, there was a lot of interest in the public sector for extending the role of the TWIC card to include all commercial drivers. As a result, the project utilized a simulated TWIC card based on a standard SmartCard which contained the driver's biographic information and an embedded fingerprint scan. The demonstration vehicle was equipped with a standard SmartCard reader with an embedded fingerprint reader which validated the card.

3.1.3 Current Status

Effective April 15, 2009, all port facilities were required to exclusively use TWIC cards to control access to their secure areas. This mandate has created a number of technical and logistical issues which resulted from a lack of oversight and poor coordination.

The program has also suffered from reliability and availability issues with existing biometric SmartCard readers. Currently there are no government approved readers available. This has resulted in the port authorities being forced to use the TWIC cards as a simple "Flash Pass" card which requires a guard to be posted at each entrance. A few ports have independently selected and installed card reader systems to help reduce fraud by electronically validating TWIC cards at their manned entrances. There is currently a pilot program under way to stimulate the creation of a SmartCard reader which can meet government standards and operate reliably in an outdoor environment.

3.1.4 Summary

Due to private sector resistance, TWIC cards are currently only required for those commercial vehicle drivers who require unescorted access to secure areas of port facilities. Additionally, a government approved biometric SmartCard reader compatible with a vehicle environment will not be available for at least several more years.

Given these issues, it could be quite a while before full implementation of the TWIC card is fully realized.

3.2 Other Initiatives

The DHS is working on programs (e.g. PASS ID) designed to provide a nationwide standardized biometric identification system. These initiatives could eventually provide a base for the driver identification needed to support this CVII application.

3.3 Public Sector Summary

None of the public sector initiatives that were identified have reached a state that can support the current needs of the CVII driver credentials verification application.

4 Private Sector Research

Internet searches for biometric SmartCard readers indicated that there were no readers currently in production for a vehicular environment. Two of the most promising companies were contacted for further information:

- Biometric Associates, LP
  22 Main Street, Suite 102
  Bangor, ME 04401
  www.biometricassociates.com
- MorphoTrak, Inc.
  113 South Columbia Street, Suite 400
  Alexandria, VA 22314
  www.morphotrak.com

Both of these companies specialize in biometric identification of individuals focused on providing physical access to secure facilities and logical access to computer and network facilities. Although they were open to discussions about creating a custom solution for vehicular access, neither had existing vehicular products or projects that they were willing to disclose nor did they have a ruggedized hardware designed for integration into a vehicle.

5 References

Transportation Worker Identification Credential Article
Wikipedia (www.wikipedia.org)

Transportation Worker Identification Credential Security Program
TSA (www.tsa.gov/what_we_do/layers/twic)

Taking TWIC Beyond "Flash Pass" Status
TWIC Update: Initiative Prepares For Pilot Projects
Security Info Watch (www.securityinfowatch.com)

www.secureidcoalition.org