

## **INCITS 395 – Project 1603D - Revised Project Proposal**

### **Information Technology – Biometric Interchange Formats - Signature/Sign Data**

#### 1. Source of the Proposed Revision

Title

“Information Technology – Biometric Data Interchange Formats – Signature/Sign Data”

Date Submitted

August 30 2004

Proposer

INCITS Technical Committee M1 Biometrics

#### 2. Process Description for the Proposed Project

##### 2.1. Project Type

D - this is a standard development project

##### 2.2. Type of Document

The project is expected to result in an ANSI/INCITS standard.

##### 2.3. Definitions of Concepts and Special Terms

Raw Signature/Sign Data – the sequentially sampled X,Y points of a digitized sign or signature, including time and, optionally, force and pen angle data values.

X resolution – the number of dots per centimeter which the digitizer resolves in the X direction. This is defined as  $X_r$ . The minimum value of  $X_r$  shall be ---.

Signature/Sign Interchange Data – Data captured directly from the digitized signature/sign (or processed from these Data) for further storage and/or communication.

Y resolution - the number of dots per centimeter which the digitizer resolves in the Y direction. This is defined as  $Y_r$ . The minimum value of  $Y_r$  shall be ---.

Sampling Rate:  $f$  – the rate at which sequential samples are taken. This may be a fixed rate or it may vary over the sample data. The minimum value of  $f$  shall be ----.

Time – T: Units of time with T=0 for the first sample value shall be associated with sequential data values. The time values shall be reported in milliseconds.

Force - the values which the digitizer returns for changes in Force shall be (0-N). The minimum value of N shall be 1. Values shall indicate points in contact and points out of contact.

Different digitizer/pen combinations provide different data, resolution capabilities and sampling rates. Some are capable of generating force values and some are not. Some generate coordinate values points off the surface and some do not. Some generate pen angle data and some do not.

2.4. Expected Relationship with Approved Reference Models, Architectures, etc.  
None

2.5. Recommended INCITS Development Technical Committee  
INCITS Technical Committee M1 – Biometrics

2.6. Anticipated Frequency and Duration of Meetings

It is anticipated that this project would require one-day meetings each two – three months.

2.7. Target Date for Initial Public Review

It is estimated that the draft document for the revised project would be ready for submission to INCITS for Milestone 4 processing in October 2004.

2.8. Estimated Useful Life of Standard

There is no known limitation on the useful life of this proposed standard.

### 3. Business Case for Developing the Proposed Standard

#### 3.1. Description

This proposed standard will define a data record interchange format for storing, processing or transmitting the information from the signature/sign data. There are currently numerous digitizers used for capturing signature data in this manner and there are also a number of different methods of representing these data for the purposes of recording the electronic signatures. The purpose of this document is to define a standard for capturing signs/signatures for the purpose of biometric comparison. It is not intended to define a standard for electronic signature capture for other purposes, although it may be relevant to those applications. This standard is intended to apply to those applications limited by the amount of storage required as well as those not so constrained. A lower bound will be established for each of the resolutions defined above.

### 3.2. Existing Practice and the Need for a Standard

Particularly at Point of Sale there are billions of electronic signatures captured each year for the purpose of associating them with card based transactions. A number of systems generating these electronic signatures are also capable of conducting biometric tests on the data so captured. There are also a number of biometric systems based upon signature input from a variety of digitizers and from different biometric vendors particularly in the area of electronic document control. With the added catalyst of the ESign Act and the developing Application Profile for Interoperability and Data Interchange -Point-of-Sale Biometric Identification , there is now an urgent need to develop a standard for a Signature/Sign Biometric Data Interchange Format.

Currently, there are two basic methods for signature matching and verification. The first relies on a "feature-based" approach that compares features extracted from the signature/sign data captured from a digitizer with a previously established template. The second approach uses data extracted from special pens which typically do not capture X,Y values explicitly but generates data associated with acceleration, pressure, angle and force. This standard is aimed at the first of these methods which constitute the vast majority of systems. Even with the successful development of these standards, information recorded by one system cannot be used by algorithms designed to operate using the other type of system. For systems capable of capturing both types of data the standard will apply to the data relating to X, Y T,F and optionally A (pen angle) values.

Digitizers vary in the data they generate. Some can accurately return pen position some way off the surface and produce an "in-proximity" signal representing the maximum distance above the surface for accurate coordinates. Systems using different digitizers should pre-process the data to generate coordinate values in the form (X,Y,T,F,A) as defined above.

The establishment of a Biometric Data Interchange Format standard for Signature/Sign will provide:

- Interoperability among vendors using different digitizers to capture the sign.
- Some level of Interoperability among biometric system vendors relying on signature/sign based data.
- Interoperability among vendors using Force data and those not using force coordinates.
- Encouragement for the adoption of biometrics in applications where interoperability is vital and digitized Signature/Sign data are available.

### 3.3. Implementation Impacts of the Proposed Standard

#### 3.3.1. Development Costs:

Technical editor labor is expected to total approximately two staff months.

#### 3.3.2. Impact on Existing or Potential Markets:

Existing and future markets where a digitizer capability already exists (eg PDA's) will benefit from this proposed standard by providing a low cost solution and will be the more likely to adopt biometrics because of the interoperability across different devices and vendors.

#### 3.3.3. Costs and Methods for Conformity Assessment:

The cost and method of conformity assessment is not known at this time. However, it is likely that test data records will be provided at a later date to determine compliance.

#### 3.3.4. Return on Investment

There is no known data on which to make an estimate.

### 3.4. Legal Considerations

#### 3.4.1. Patent Assertions

There should be no patent issues associated with the data capture process since the captured data is not technology dependent. However, depending upon the application, the use of the standard may require licenses under one or more patents

#### 3.4.2. Dissemination of the Standard Drafts

Dissemination of this standard will be distributed electronically. There may be distribution constraints as this document reaches different stages of development and processing within INCITS and ISO/IEC JTC1.

## 4. Related Standards Activities

### 4.1. Existing Standards

ANSI/NIST/ITL 1-2000

Common Biometric Exchange File Format (CBEFF), NISTIR 6529-2001.

ANSI/INCITS 358-2002 -Information Technology -BioAPI Specification

ANSI/X9 X9.84-2001 - Biometric information management and security

ISO/IEC FCD 7816-11.2 -Personal Verification Through Biometric Methods In IC Cards.

### 4.2. Related Standards Activity

Related standards activity includes:

INCITS Technical Committees B10, L3, and T4; ASC X9;

NIST/BC Biometric Interoperability, Performance and Assurance WG, and

BioAPI Consortium.

- 4.3. Recommendations for Close Liaison  
INCITS Technical Committees B10, L3, and T4.  
ASC X9F4  
NIST/BC Biometrics WG  
BioAPI Consortium  
IBIA