Financial Verification System
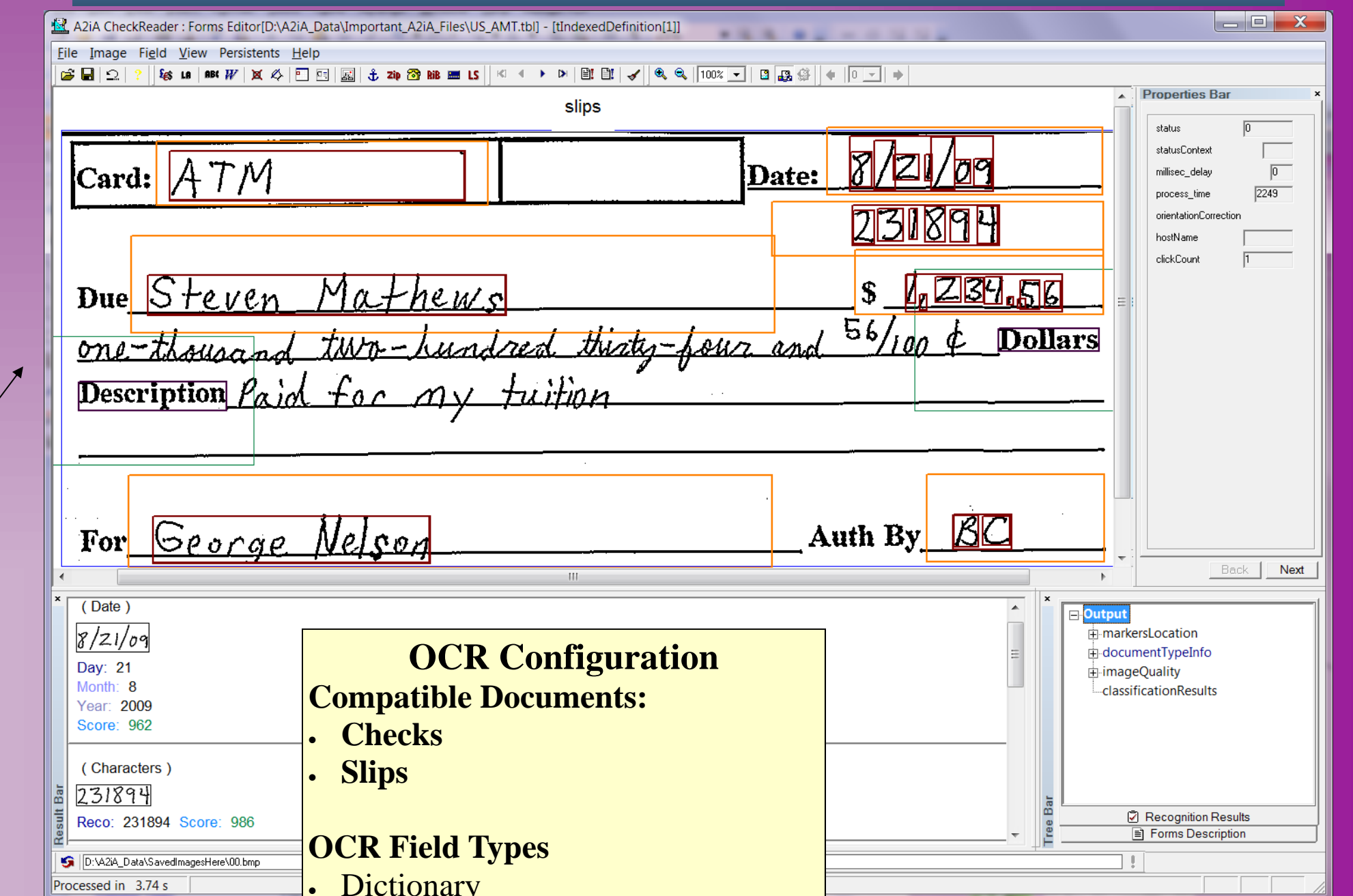
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Goal of this Project:
Create a secure system that extracts bank information, and compares this data with physical documents.

BIE Security Program
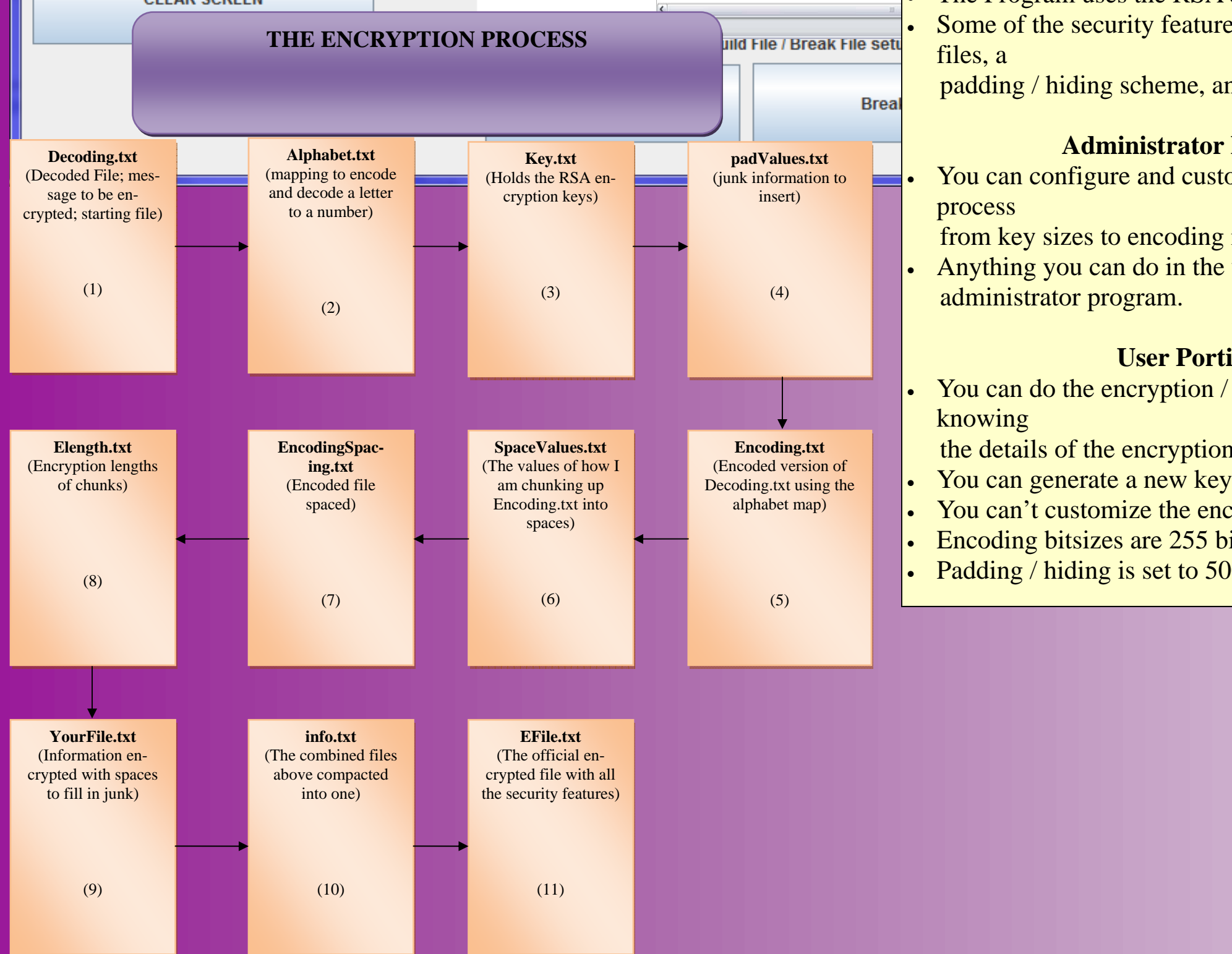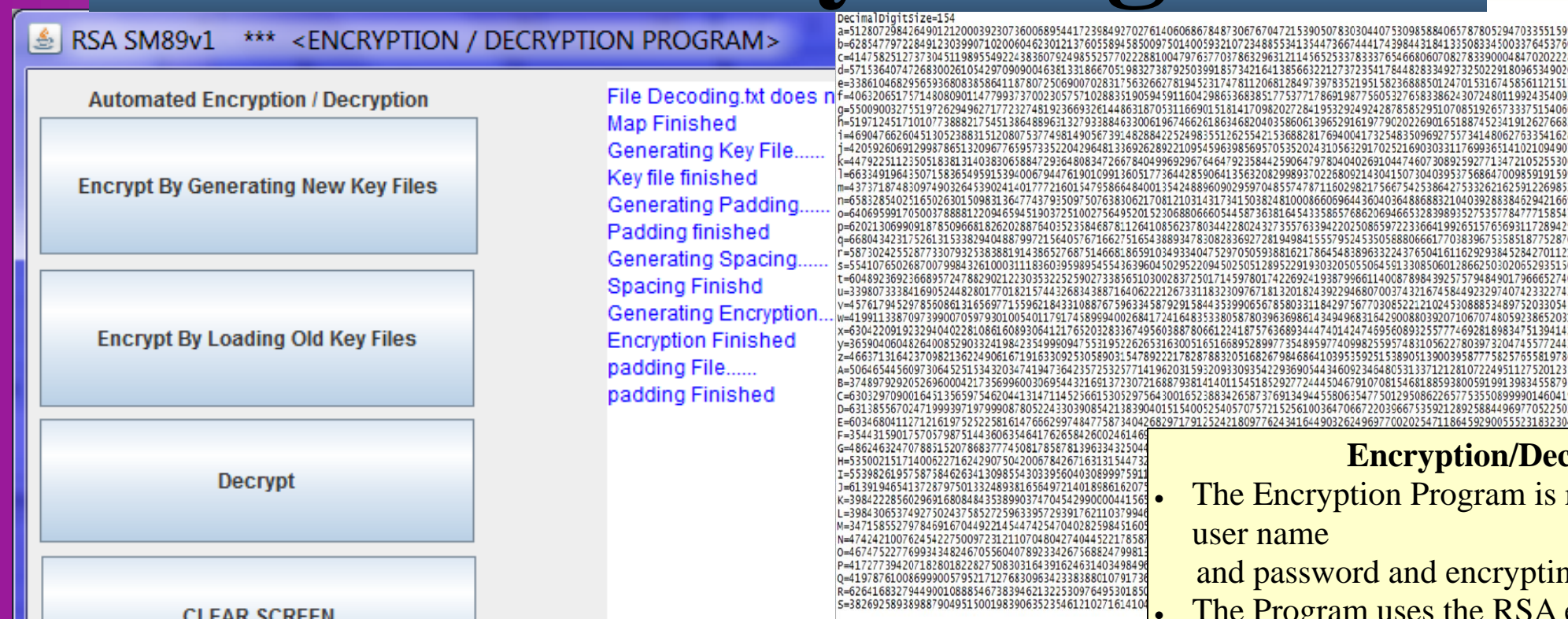
Encryption/Decryption Program
- The Encryption Program is responsible for Encrypting the user name and password and encrypting saved sessions.
- The Program uses the RSA encryption scheme.
- Some of the security features include large encoding of files, a padding / hiding scheme, and a chunking scheme.

Administrator Portion Program
- You can configure and customize any part of the encryption process from key sizes to encoding maps, etc…
- Anything you can do in the user interface can be done in the administrator program.

User Portion Program
- You can do the encryption / decryption of your files without knowing the details of the encryption process.
- You can generate a new key set or use old key values.
- You can't customize the encryption process.
- Encoding bitsizes are 255 bits, keys are 500 bits.
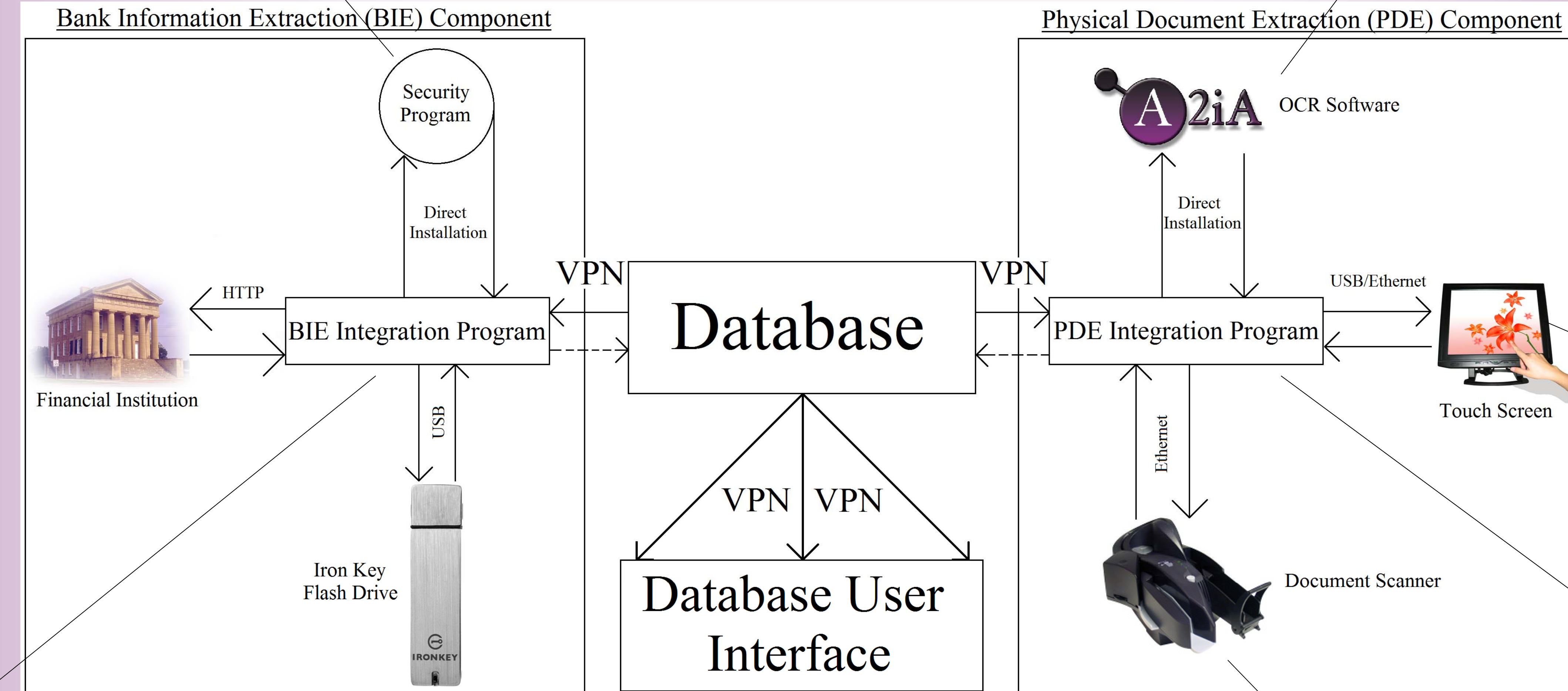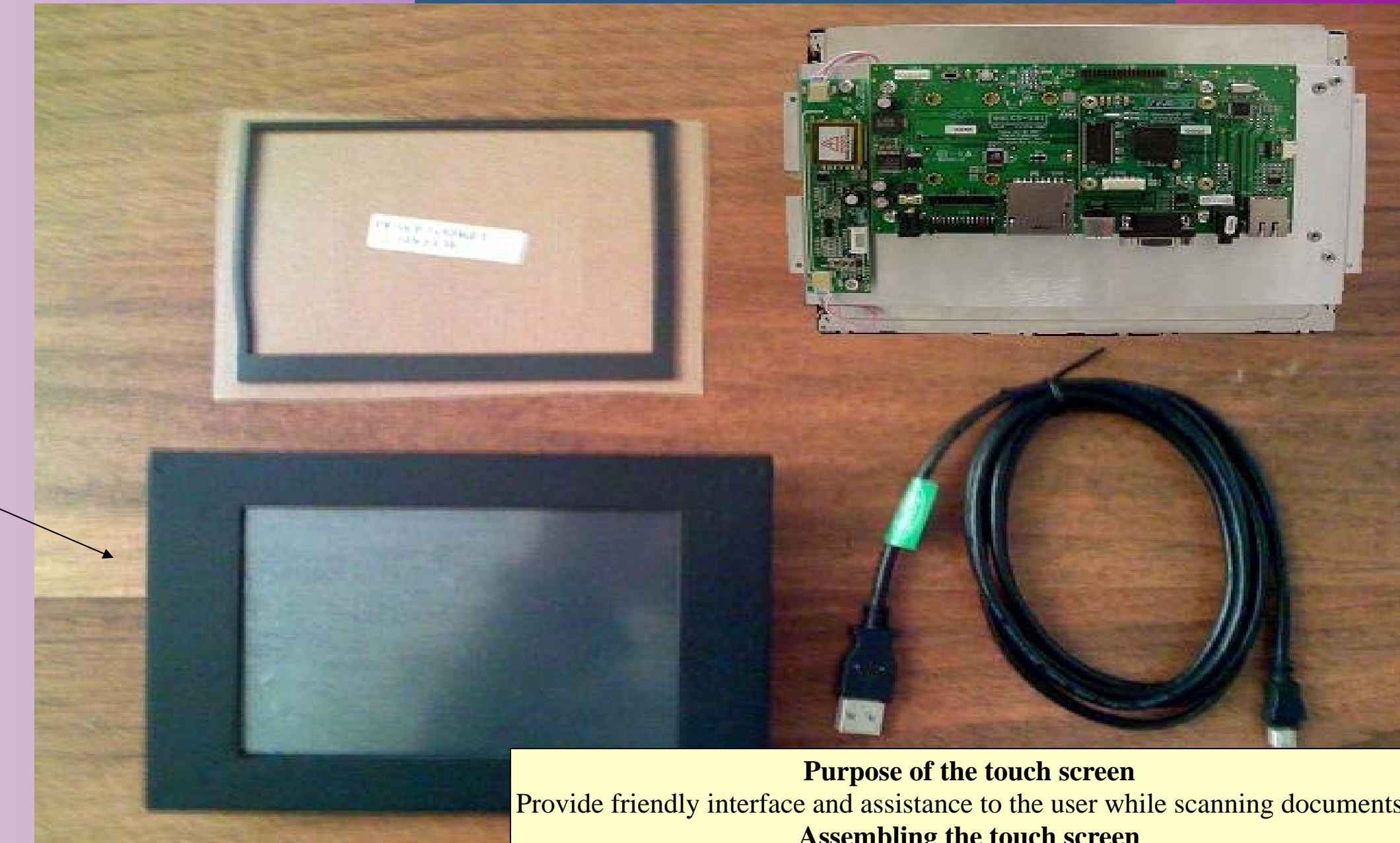- Padding / hiding is set to 500.

OCR Software

OCR Configuration
Compatible Documents:
- Checks
- Slips

OCR Field Types
- Dictionary
- Character Array (size specification)
- Legal Amount
- Literal Amount
- Date
- Markers

BIE Integration Program

BIE Integration
- The internet session program records all traffic traveling to and from a web browser. It then has the capability of replaying that session back.
- So a user can go to their bank website, click on the link that downloads their bank information, and then at some future time, they can replay that session and get their current bank info without traversing the internet. (The user just replays it!)

Firefox
- The program is initiated through a proxy and Firefox is set to talk through this proxy.

Bank Information Extraction (BIE) Component / Physical Document Extraction (PDE) Component

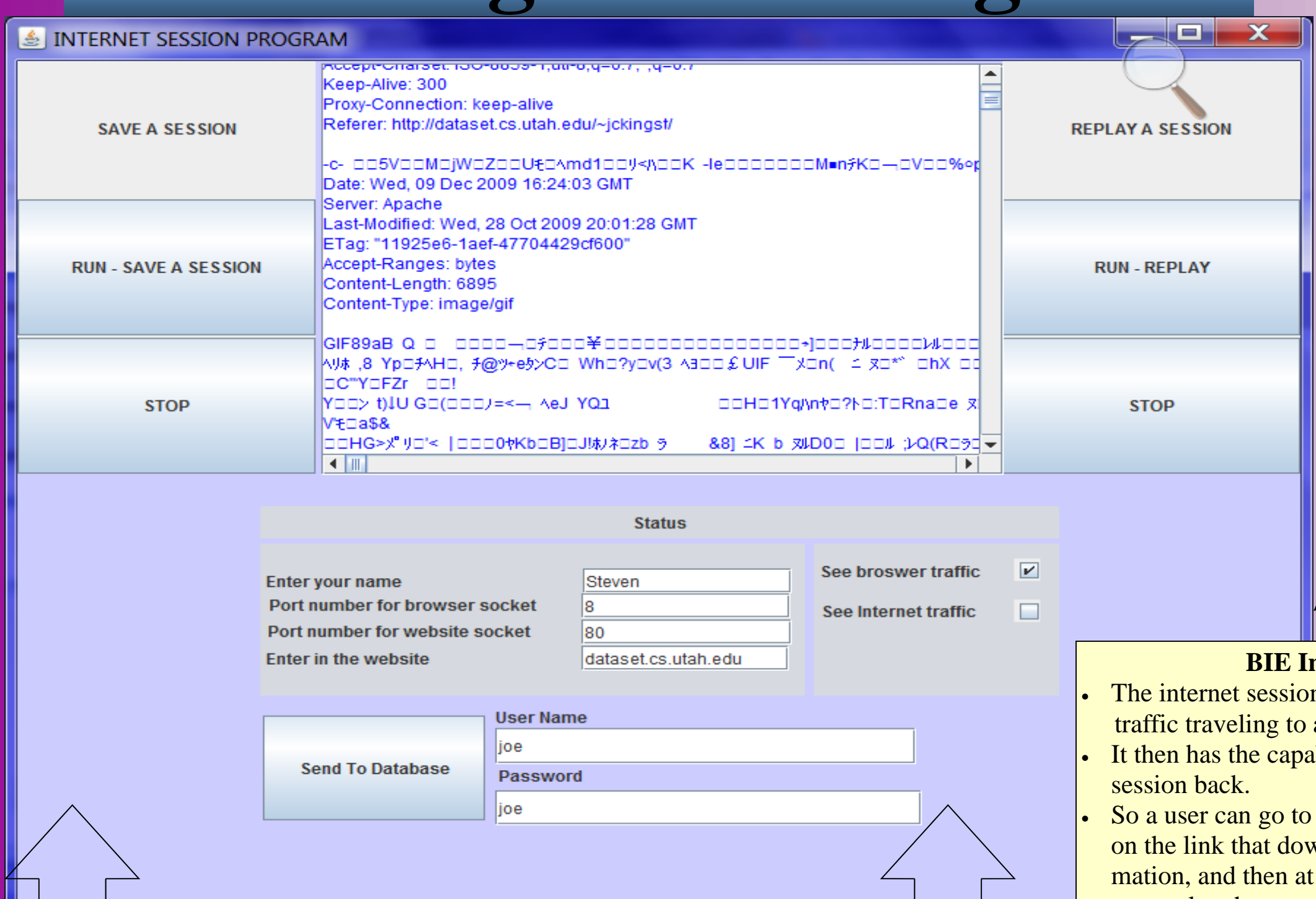
Touch Screen

Purpose of the touch screen
Provide friendly interface and assistance to the user while scanning documents.

Assembling the touch screen
Embedded LCD Controller, Screen, Touch Pad, and Enclosure case.

Programming Touch Screen
- All commands are sent to the Controller through USB or Ethernet.
- Out Commands are sent through software programming in C++.
- All commands that are sent to the Controller must be in the hex format.
- LCD commands range from
  - Determining the color of the screen
  - Placing images on the screen
  - Placing buttons on the screen
  - Displaying simple text on the screen
  - Drawing polygons on the screen
- All images and fonts must be saved on the SD card interfaced to the touch screen.

Database User Interface

Bank Transactions are grouped by category. Click on a category to view all transactions in that category.

Easily retrieve old documents when you hover over the verified check-mark.

Date input is made simple with a popup calendar.

Document Scanner

Scanner Control
Scanner is controlled with a Java program:
- XML is the language used to communicate with the scanner.
- HTTP URLs are used to run specific scanner functions:
  a. Configure settings
  b. Check scanner status
  c. Scan document (Single or Auto-Feed)
  d. Browse through scanner setup

PDE Integration

PDE Integration Program
There are two main programs for the PDE Program:
- C++ Program
  a. Responsible for managing touch screen.
  b. Must send/receive document information from Java program for PDE user interface.
- Java Program
  a. Responsible for running OCR, document scanner, and sending data to the database.