Magnetic Strip and Barcode Decoding
Design and Testing Plan
Version 1.2
## Revision History

<table>
<thead>
<tr>
<th>Date</th>
<th>Version</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 10, 2007</td>
<td>1.0</td>
<td>The first draft.</td>
</tr>
<tr>
<td>March 15, 2007</td>
<td>1.1</td>
<td>Second draft after Dr. Yue's feedback.</td>
</tr>
<tr>
<td>March 21, 2007</td>
<td>1.2</td>
<td>Third draft after Dr. Yue's feedback.</td>
</tr>
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Design and Testing Plan

1. Product Overview

1.1 Product Perspective

MiniCheck MGR™ [MG01] will be the solution every retail store would want to have at their point of sale, in this era of corruption and lawlessness.

1.2 Summary of Capabilities

<table>
<thead>
<tr>
<th>Customer Benefit</th>
<th>Supporting Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process Checks</td>
<td>Scanning check extracting the information such as the account, routine, check number and the issuer’s information and forwarding to the clearance agency.</td>
</tr>
<tr>
<td>Validating Magnetic and Barcode IDs</td>
<td>The information printed on the ID can be compared to the stored information in the magnetic strips or barcodes. The MagnePrint signature adds an extra level of protection against duplicated or altered IDs.</td>
</tr>
<tr>
<td>Storing Customers Information</td>
<td>The customer’s information saved for focused / targeted marketing and or validation.</td>
</tr>
</tbody>
</table>

1.3 Assumptions and Dependencies

The software is developed for the Microsoft Windows platform. All testing will be performed on MS Windows XP Professional with Service Pack 2.0.

2. Architecture

2.1 Design

The system will be developed using Microsoft C# [MS01]. The application being developed will be a standalone program that will handle the Magnetic and 2D Barcode State IDs and Drivers Licenses.
2.2 Libraries

The .Net libraries being used for the project can be classified into the following three categories:

- **Application Specific Libraries**
  - System
  - System.IO
  - System.Text
  - System.Drawing
  - System.Collections
  - System.ComponentModel
  - System.Windows.Forms
  - System.Diagnostics

- **Database Specific Libraries**
  - System.Data
  - System.Data.SqlClient
  - System.Data.OleDb
  - System.Data.Common
  - System.Data.Sql
- **2D Barcode Decoding SDK[CL01] Library**
  - ClearImage
2.3 Database
The system will be designed for Microsoft Access [MS01] database. Only one table will be used to store the card holder’s information. This can be viewed as a flat file data repository without any relationships.

2.4 Process

- The inputs of the system include Raw data from the magnetic stripe reader or a scanned image of an ID.
- In case of an image the software uses a Software Development Kit to convert image to Raw data.
- Once the Raw data is available the string will be parsed i.e. broken down into pieces of information and dumped into the local database.
- In case of a magnetic card the MagnePrint signature will be forwarded to Magtek’s Server for authentication.
3. Software Development Model

Water fall model has been selected for development as it is the ideal approach for the given time, complexity and team size for this project. The requirements and outcome are also specified and documented clearly that suggest preferring the use of the water fall model.

4. Work Breakdown Structure

<table>
<thead>
<tr>
<th>Task Name</th>
<th>Duration</th>
<th>Start</th>
<th>End</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team Formation and Project Selection</td>
<td>1 day</td>
<td>01/18/07</td>
<td>01/18/07</td>
</tr>
<tr>
<td>Requirements and Specifications</td>
<td>10 days</td>
<td>01/18/07</td>
<td>01/31/07</td>
</tr>
<tr>
<td>Web Site Management and Project Documentation</td>
<td>71 days</td>
<td>01/19/07</td>
<td>04/26/07</td>
</tr>
<tr>
<td>Meetings and feedback from Instructor and Mentor</td>
<td>72 days</td>
<td>01/18/07</td>
<td>04/26/07</td>
</tr>
<tr>
<td>Technology Identification</td>
<td>17 days</td>
<td>02/02/07</td>
<td>02/24/07</td>
</tr>
<tr>
<td>Prototype Development</td>
<td>24 days</td>
<td>02/24/07</td>
<td>03/28/07</td>
</tr>
<tr>
<td>Deliver final product</td>
<td>16 days</td>
<td>03/28/07</td>
<td>04/18/07</td>
</tr>
</tbody>
</table>

5. Testing Plan

Seven samples of barcode IDs and a sample of magnetic ID are available. We will be doing Ad-hoc manual testing and rely on the AAMVA’s specification to evaluate the outcome.

Magnetic ID Sample

<table>
<thead>
<tr>
<th>Texas (With MagnePrint)</th>
<th>%TXDALLAS^GATES$BRIAN$A^900 BAY AREA BLVD. #412^?;63601512345678=110918720911?#&quot; 760580000 C A M811195BLABRN 2*)TI ?</th>
</tr>
</thead>
</table>
### Magnetic Strip and Barcode Decoding

#### Design and Testing Plan

| 245487A93AC8|6623C6C167A25872|4130344E373432000048|E 706|B6530E3BA6826717 |

<table>
<thead>
<tr>
<th>Track 1</th>
<th>Track 2</th>
<th>Track 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start sentinel</td>
<td>Start sentinel</td>
<td>Zip Code</td>
</tr>
<tr>
<td>State and City</td>
<td>ISO Issuer Identification Number (IIN)</td>
<td>Class</td>
</tr>
<tr>
<td>Name (Last$First$Middle)</td>
<td>License Number</td>
<td>Restrictions</td>
</tr>
<tr>
<td>Street Address</td>
<td>Field separator</td>
<td>Gender</td>
</tr>
<tr>
<td>Last track character</td>
<td>Expiry Date (yymm)</td>
<td>Height</td>
</tr>
<tr>
<td></td>
<td>Date of Birth (yyyyymmdd)</td>
<td>Weight</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hair Color</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Eye Color</td>
</tr>
</tbody>
</table>

#### 2D Barcode ID Samples

**Arkansas**

```
@AAMVA63603301DL00270194DAQ9999000680DAASAMPLE,SUSAN,DAGP,O. BOX 1272 ROOM 2120DAAILTILLETROCKDAJARDAK72205DARDDASDATDAU511DAW121DAYBRDZABRDDBA20011122DBB19707121DDBCFCDBD200100416
```

**Illinois**

```
@ANSI6360350101DL00290186DLDAALAST,FIRST,MIDDLEDAQF64589627597DBA200200102DBB17810102HMK&=-84,HQZCB4MZI-_ME WDEOUKPCMFEX__M_:<<:5,,4,,,,-HM^P HMG8&>>&>>&>,,PMX &>>&,-'7,7K<JSX/<O-HNOY_HMA9=-'7'VOJ "PMUNFB
```

**Iowa**

```
@AAMVA63601801DL28204DLDBAUGHERTERDADCOFDDAESTDADALT400SE5THDANSESIMOUESDA01ADAP50301DAQ999999999DARCDASBDVDATODA604DAW321DAYBRODBA20030307DBB19470307DBCFDBD20010130DBGYNDBHBDB399999909999912AA33389327
```

**Maine**

```
@AAMVA63604010200L00290298DAQ0001540DBB197911125DBA20001125DABMCPSHERSONDABILLDADCDAEIIRDAG123MAINSTREDDAIAUGUSTDDAJMEGDA043300000DAW160DBCMDAZBRDAYBLDAU504DARCDASABCDMEQM0DATHIJKNPDBKE;LJKRLKDAJAFKJ
```

**Massachusetts**

```
@ANSI6360020101DL00290136DAALASTAME-FIRST,MIDDLEDAQPOBox1234DAIAntownDAJMAADAK12345DAQ599988801DARMDASBDATDBA200501122DBB197551012DBCMDBBD20000120
```

**Oregon**

```
@AAMVA63602901DL00270158DLDAJONES,ANNMARIEDEL1234MONEOIEGAMDLABANYAID0RDAP97321DAQ9646267DBB19820707DBA20040707DBD20000522DASDATDBCDFWAD100DAU505DARCDZO A00000000
```

**Washington**

```
@ANSI6360450102DL00390234ZW0273027DLDAAKH,HOANG,TUDAG1613022NDAVEWDAILYNNWOODDAAJWADAK98037DAQKH*HT392GDAJARSDATDAB20100407DBB196100407DGC1BD20050322DAU507DAW160DAYBRD1613022NDAWANDLYNNWOODDADAP98037ZWZWA05281E1551ZWBZWC32
```

---

**DAQ: License Number**

**DAA: Name**

**DAG: Address**

**DAI: City**

**DAJ: State Code**

**DAK: Zip code**

**DAR: Class**

**DAS: Restriction**

**DAT: Endorsement**

**DAU: Height**

**DAW: Weight**

**DAY: Eye Color**

**DAZ: Hair Color**

**DBA: Expiration Date**

**DBD: Date of Birth**

**DBC: Gender**

**DBD: Date of Issue**

**DBI: Issuer Identification Number**
These samples will determine the accuracy of our model. At the moment these are the only IDs available if more are available in future they will also be used to test the consistency of the design.

6. References

[MG01] MiniCheck MGR™
http://www.minicheckocr.com/

[MR01] MiniCheck-OCR
http://www.minicheckocr.com/

[AM01] American Association of Motor Vehicle Administrators (AAMVA)
http://www.aamva.org/

[CL01] ClearImage Software Development Kit (SDK)
Inlite Research, Inc
http://www.inliteresearch.com/

[MS01] C# and MS Access
Development tools used, products of Microsoft Corporation
http://www.microsoft.com/