Contact Management System - "Data Entry Card"

Student: Wu Kong Sang (04681905)
Yeung Man Yui (04603276)

Supervisor: Prof. Oscar Au
Introduction:

The Data Entry Card System (DEC) uses the Watermark Technology to hide a numeric key into the business card image. The Watermark embedded card image will not be distorted after the embedding process. The hidden signal is nearly invisible to human eyes. Users can print the card image with a Laser Printer or Offset Printer to produce their Watermark business card. After receipt of the cards by others, they can retrieve the card information as well as some additional information (e.g. personal photo, company info...) by scanning the Watermark business card via the DEC System. Since records are retrieved from Database Server with the embedded key on the card, the information is reliable and accurate compared with those applications retrieving the card information by using OCR Technology. Moreover, the DEC system provides additional features for data exchange between software (e.g. MS Outlook) and personal devices (e.g. PDA, cellular phone...).

Features:

~ recognizes one, four or six cards in ONE scan
~ recognizes the card in ANY rotation angles
~ synchronizes address book with MS Outlook
~ exports contact records as HTML file for viewing anywhere, anywhere (e.g. PDA, Internet Explorer)
~ exports CSV, XML files for easy data exchange with other softwares
~ sends SMS to contact person

Embedding Process

Retrieval Process
Embedding Process:

Invisible tiny yellow dots are included in the card image. The yellow dots are allocated evenly on the card to form a pattern. The dots pattern representing a numeric key and will be used as the unique primary field in the database structure. By retrieving the hidden key on the printed Watermark business card, the corresponding record can be accessed properly.

---

Original card image

Tiny yellow dots (Scale enlarged for easy presentation)

Watermark Technology
Comparison with relevant softwares in Market:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Common Card Reader (OCR Tech)</th>
<th>DEC System (Watermark Tech)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognizes cards in ANY rotation angles</td>
<td>-</td>
<td>✓</td>
</tr>
<tr>
<td>Scans mutli cards at one time</td>
<td>-</td>
<td>✓</td>
</tr>
<tr>
<td>Retrieves information accurately</td>
<td>-</td>
<td>✓</td>
</tr>
<tr>
<td>Retrieves additional information (e.g. personal photo, company info...)</td>
<td>-</td>
<td>✓</td>
</tr>
<tr>
<td>Sends SMS to others</td>
<td>-</td>
<td>✓</td>
</tr>
</tbody>
</table>

Performance:

DEC system can recognize the Watermark business card with a successful rate of about 99% (performance varies depending on card condition). It has a successful rate of about 60% for a bad condition card (e.g. hand writing, dust...).