RFID-based Vehicle Authentication Solution

NeoTech Identity Solutions Pvt. Ltd.
About Us

- NeoTechID is a provider of **Business Automation Solutions** based on AIDC technologies such as RFID, bar-code scanning, biometrics, NFC and smart cards.

- NeoTechID was founded in 2009 with a **Vision** of filling the void between the limited capabilities of hardware resellers and the client’s requirement of a total solution approach to their needs.

- We offer **Operations Visibility** and **Process Optimization** through innovative use of AIDC technologies to track various assets, integration of AIDC devices with back-end systems and in-house consulting, to maximize business gains.

- We aim to become the most preferred and trusted partner for such solutions by providing **Innovative, Reliable** and the most **Cost-effective Solutions** based on latest technologies that will result in better ROI for our clients.
### Application and Industry Focus

<table>
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<tr>
<th>Industry</th>
<th>Solution</th>
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<tr>
<td><strong>Jewellery</strong></td>
<td>• RFID based Automated Stock Counting / Verification Solutions with integration to exiting POS applications / ERP systems</td>
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<tr>
<td><strong>Manufacturing</strong></td>
<td>• Warehouse automation and mobility solutions with integration to SAP</td>
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<td><strong>Corporate Offices</strong></td>
<td>• Fixed Asset Management &amp; Tracking</td>
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<td>• Laptop / Employee Movement Tracking</td>
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<td>• IP-surveillance, Access Control</td>
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<td><strong>Custom Applications</strong></td>
<td>• School Bus and Students Tracking</td>
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<td>• Event Delegate Management</td>
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<td>• Laundry Management etc.</td>
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Vehicle Authentication: Challenges

- Most places track the vehicle entering/exiting their premises through manual verification & data entry processes. Appointing security guards to verify the vehicle and driver and make an entry in a register may seem cost effective, but there are inherent challenges associated with such manual checks.
  - Limited visibility about vehicles moving IN / OUT of the premise.
  - Unavailability of real time information. No information available about vehicle owners
  - Slow manual checks lead to queuing up of vehicles
  - Security breach possible in case guard is absent
RFID Authentication - Overview

- RFID tags attached to vehicles
- Vehicle ‘ID’ mapped to vehicle owner / group of owners / authorized personnel
- Scanning mechanism at entry/exit points for:
  - Vehicle identification (RFID scanners to detect tags on vehicles)
  - Person identification, if required (RFID cards issued to vehicle owners)
- Alerts raised for all exception scenarios. Can include SMS and email alerts in addition to standard audio visual alerts
- Customisable Reports
RFID Authentication: How It Works

1. Vehicle reaches entry point
2. Vehicle ID is scanned
3. Driver scans his ID card
4. System performs mapping of driver to vehicle
5. Valid/Invalid notification given to security personnel
6. Boom Barrier Opens & Vehicle is allowed to pass
Typical Hardware Installation

**Pole Mounted Antenna**

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<tr>
<th>ADVANTAGES</th>
<th>DISADVANTAGES</th>
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<tr>
<td>1. Easy installation</td>
<td>1. Critical angle requirement</td>
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<td></td>
<td>2. Physically accessible; hence tampering possible</td>
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<td>3. Different mounting heights required for large vehicles / small vehicles / two wheelers</td>
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**Windscreen RFID Tag**

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<tr>
<td>1. Can be easily stuck on the windshield of the car</td>
<td>1. Prone to tampering</td>
</tr>
<tr>
<td></td>
<td>2. Exposed to environmental conditions (for two wheelers)</td>
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<td></td>
<td>3. Scanning is a challenge when pasted /tied on two wheelers</td>
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<td></td>
<td>4. Generally car owners unwilling to disturb the decor</td>
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NeoTechID Recommendation

- Ground Mounted Antenna
- IP68 rated RFID tag riveted/stuck on the underside of the vehicle

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<td>1. Tamper proof</td>
<td>1. Comparatively more expensive</td>
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<tr>
<td>2. Concealed installation of antennas</td>
<td>2. Difficult for initial tag attachment</td>
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<tr>
<td>3. Weather proof</td>
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<tr>
<td>4. 100 % detection for two-wheelers / four-wheelers</td>
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<tr>
<td>5. No height restrictions on vehicles as scanning is done from underneath</td>
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ADVANTAGES: Tamper proof, Concealed installation of antennas, Weather proof, 100 % detection for two-wheelers / four-wheelers, No height restrictions on vehicles as scanning is done from underneath.

DISADVANTAGES: Comparatively more expensive, Difficult for initial tag attachment.
Tag Mounting Examples

IP-68 rated, All Weather, Tamper-proof Tag Mounted under the vehicle is more secure and durable as compared to wind-shield stickers.
Registration and Alerts Application

- Authentication details are displayed
- Alerts are raised in case of mismatch
- Alerts can be Visual/Audio/E-mails/SMS
Multi-Gate System Architecture

- Only hardware is required to be installed at individual locations
- Entire system will is centrally controlled via a web based application
- Online as well as offline transactions possible
- For corporate customers - Active Directory integration is possible for master data input
Key Benefits

- Real-time and historical tracking information
- Improved data accuracy
- Auto IN-OUT tracking of vehicles
- Easily scalable to include features such as access control and monitoring
- Manageable Locally & Centrally
- Replicable to any number of locations
- Easy to fulfill MIS reporting needs
- Possible to integrate with different types of barriers
Our Value Proposition

- **Expertise in RFID** and practical experience gained through our projects.
- **Knowledge Centers** made up of our IT engineers, advanced equipment, and consultants are able to derive the best solutions for our clients.
- **Support Infrastructure** comprising of software and hardware channel partners help achieve client satisfaction every single time.
- **Focus** on consistently meeting the expectations of our customers and more. We do our level best to offer you a solution that not only meets your requirements but is also cost effective.
Partners
Thank You

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