

# **Access Control Management System Solution**

**Newcapec Electronics Co., Ltd.**

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# 一、 Industry Background

## 1.1. Background

As smart campuses and smart industrial parks accelerate development, access management, as the first line of defense in the security system, is undergoing a profound shift from "fragmented control" to "integrated intelligent management." In traditional deployments, access control devices, turnstiles, and smart locks operate independently, with fragmented permissions, data silos, and cumbersome O&M, making it difficult to meet the modern campus and enterprise requirements for security, convenience, and intelligence.

## 1.2. Pain Points of Traditional Models

- ❖ **Dispersed Devices and Fragmented Management:** Access control devices, turnstiles, and smart locks are supplied by different vendors and managed on separate platforms. Permissions must be configured repeatedly, data cannot be shared, and O&M costs remain high.
- ❖ **Limited Authentication Methods and Poor User Experience:** Reliance on physical cards or keys means users cannot enter if they forget them. Visitor and temporary-personnel processes are cumbersome, with insufficient convenient identity-authentication options.
- ❖ **Data Silos and Limited Insight:** Access data is scattered across subsystems and cannot form a unified view. Security warnings for abnormal behavior, dormitory return analysis, and similar scenarios lack data support, leaving management in a "passive response" mode.

## 二、 Product Overview

### 2.1. Product Positioning

The Access Control Management System is a full-scenario intelligent access management platform for campuses, enterprises, and industrial parks. Based on the design principles of "one platform, all device types, unified authentication," it brings access control devices, pedestrian turnstiles, smart locks, and other security terminals onto a unified management platform, creating a closed-loop lifecycle covering device deployment, permission assignment, access control, and data analysis.

### 2.2. Design Concept

- ❖ One Person, One Profile: Create a unified identity profile for each person, enabling one person, one credential, one authorization, and access across all scenarios while avoiding duplicate entry and fragmented permissions across multiple systems.
- ❖ Multi-Credential Authentication: Supports multiple authentication methods, including cards, QR codes, and facial recognition, enabling users to move seamlessly through access-controlled doors, turnstiles, smart locks, and other scenarios with the same identity credential.
- ❖ Centralized Device Management: A single platform integrates management processes for all types of access devices and covers the entire lifecycle from deployment and O&M to monitoring, greatly simplifying operations.

### 2.3. Product Highlights

- ❖ Integrated Full-Lifecycle Device Management: A single platform integrates

management processes for access control devices, turnstiles, smart locks, and other device types throughout deployment, O&M, and monitoring, greatly simplifying operations and effectively reducing security-system O&M costs.

- ❖ Deep Integration and Interconnection Across Business Scenarios: Builds a unified identity and permission management framework that deeply integrates access control, turnstiles, visitor management, dormitory management, and other access-authentication scenarios, enabling system interconnection, data sharing, and business collaboration. Fine-grained authorization through hierarchical roles and permissions supports multi-level management needs.
- ❖ Intelligent Visual Data Analysis: Graphical interfaces display key data such as device status, online/offline status, remaining battery level, and alerts, while multidimensional reports cover access details, abnormal behavior, dormitory return status, and more. Multi-scenario intelligent analytics provide comprehensive data support for management decisions.

### 三、 Scenario Overview



### 四、 Core Functions

#### 4.1. Function Matrix

| Function Module                 | Core Capabilities                                                                                                                                               |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Access Permission Management    | Operations dashboard, authorization management, authorized-access query, identity-based authorization policies, door-opening passwords, and access data details |
| Personnel Management            | Personnel information maintenance, hierarchical authorization, and organizational structure management                                                          |
| Device Management               | Device information, area information, device parameter management, device groups, real-time device monitoring, and OTA remote upgrades                          |
| Scenario Management             | Dormitory scenario (return-to-dorm / attendance linkage), library scenario (entry statistics / capacity monitoring)                                             |
| Mobile App Functions (Optional) | Door Opening Assistant (administrator remote opening / user virtual card)                                                                                       |

|                   |                                                                                          |
|-------------------|------------------------------------------------------------------------------------------|
| System Management | System parameter configuration, role and permission management, and operation audit logs |
|-------------------|------------------------------------------------------------------------------------------|

## 4.2. Access Permission Management

Access Permission Management is the core business hub of the system, providing end-to-end management from the data dashboard to access control:

- Operations Dashboard:** Displays key indicators in real time, including device-category summaries, connection status, access details, entry/exit rankings, and alert data.



- Authorization Management:** Supports batch or individual authorization and flexible access-permission configuration by area, time period, and device group.

名单类型: **切换** 设备通用名单

按部门 按人员 按人员标签

说明: 按部门树定位到具体班级等叶子节点, 仅叶子节点可作为查询条件, 单击后触发右侧查询。

Q 按部门名称搜索

- 新开普大学
  - 历史学院
  - 国际学院
  - 安全学院
  - 出入应用事业部**
  - 新开普大学校友会

授权的人员信息 当前查询维度: 按人员 (出入应用事业部)

设备 区域

以下仅展示组长设备的授权配置; 与该组长同组的组员设备同样享有上述授权。

人员信息: 请输入姓名/人 设备名称/序列号: 请输入

添加授权 复制授权 取消授权 清空授权

当前表格已选择 0 项 清空

| <input type="checkbox"/> | 设备名称     | 设备组 | 设备序列号            | 区域全称    | 姓名 | 人员编号   | 有效期  | 创建时间  | 操作        |
|--------------------------|----------|-----|------------------|---------|----|--------|------|-------|-----------|
| <input type="checkbox"/> | 203房间-正式 |     | 4931525062010119 | 2号楼/... | 张  | 210805 | 长期授权 | 2026- | 取消授权 编辑时间 |
| <input type="checkbox"/> | 203房间-正式 |     | 4931525062010119 | 2号楼/... | 吴  | 130503 | 长期授权 | 2026- | 取消授权 编辑时间 |

共 2 条 10条/页 < 1 > 前往 1 页

- **Authorized Access:** Visually displays relationships among authorized personnel, devices, and areas, with support for quick search and adjustment.

人员信息: 请输入姓名/人员编号 区域/设备: 请选择区域/设备 下发状态: 全部 授权状态: 有效

名单类型: 设备通用名单 所在部门: 请选择部门 设备序列号: 请输入设备序列号

导出

| <input type="checkbox"/> | 区域/设备    | 姓名 | 人员编号       | 所在部门            | 区域全称         | 设备序列号         | 介质列表     | 授 | 操作   |
|--------------------------|----------|----|------------|-----------------|--------------|---------------|----------|---|------|
| <input type="checkbox"/> | 203房间-正式 | 王  | 171130     | 新开普大学-出入应用事业部   | 2号楼/2层/203房间 | 4931525062... | 卡 密码     |   | 授权关系 |
| <input type="checkbox"/> | 203房间-正式 | 林  | 20252161   | 新开普大学-安全学院-信... | 2号楼/2层/203房间 | 4931525062... |          |   | 授权关系 |
| <input type="checkbox"/> | 203房间-正式 | 吴  | 130503     | 新开普大学-出入应用事业部   | 2号楼/2层/203房间 | 4931525062... | 卡 密码 ... |   | 授权关系 |
| <input type="checkbox"/> | 203房间-正式 | 张  | 210805     | 新开普大学-出入应用事业部   | 2号楼/2层/203房间 | 4931525062... | 卡 密码     |   | 授权关系 |
| <input type="checkbox"/> | 人脸平板1    | 张  | 9000000... |                 | 武汉大学/梅园1舍    | 333           |          |   | 授权关系 |

共 5 条 10条/页 < 1 > 前往 1 页

- **Identity-Based Authorization Policies:** Supports differentiated authorization policies based on identity type, organizational structure, time period, and other dimensions.

新增授权规则

\* 名单类型

设备通用名单

\* 设备范围

请选择设备维度及范围

选择设备

已选维度: 未选择

\* 人员范围

请选择人员维度及范围

选择人员

已选维度: 未选择

\* 有效期

☒ 长期授权
 ☐ 短期有效

备注说明

最多100个字符

0/100

重置

保存

- Door-Opening Password:** Configures an independent door-opening password for each person as an additional authentication method alongside cards and facial recognition.

编辑

设置门锁初始密码:

用户可使用初始密码开门, 请尽快至移动端修改个人开门密码

☒ 不设初始密码: 用户可在移动端自行设置个人开门密码
 ☐ 身份证后6位
 ☐ 手机号后4位+2位自定义数字

- Access Data:** Records complete details for every access event and supports multidimensional query and export by person, location, and time period.

区域 部门 设备

- 1号楼
- 2号楼
- 武汉大学
- 测试密钥下发
- 网关区域
- 行知园2

起止日期: 2026-06-24 00:00:00 - 2026-06-30 23:59:59

姓名: 请输入姓名

人员编号: 请输入人员编号

认证方式: 请选择认证方式

人员类型: 内部

身份: 请选择身份

导出

搜索 重置

| <input type="checkbox"/> | # | 通行时间                | 姓名    | 人员编号        | 人员部门    | 人员身份 | 操作 |
|--------------------------|---|---------------------|-------|-------------|---------|------|----|
| <input type="checkbox"/> | 1 | 2026-06-24 18:20:05 | 测试人员. | 20260600011 | 出入应用事业部 | 在职人员 |    |
| <input type="checkbox"/> | 2 | 2026-06-24 18:20:05 | 测试人员. | 20260600011 | 出入应用事业部 | 在职人员 |    |
| <input type="checkbox"/> | 3 | 2026-06-24 10:52:39 | 测试人员. | 20260600011 | 出入应用事业部 | 在职人员 |    |
| <input type="checkbox"/> | 4 | 2026-06-24 10:52:31 | 测试人员. | 20260600011 | 出入应用事业部 | 在职人员 |    |
| <input type="checkbox"/> | 5 | 2026-06-24 10:24:54 | 测试人员. | 20260600011 | 出入应用事业部 | 在职人员 |    |

共 9 条 10条/页 < 1 > 前往 1 页

## 4.3. Personnel Management

Creates unified personnel identity profiles and supports tree-based organizational management, hierarchical role-based authorization, and facial-data enrollment and management. Personnel information is linked with the one-card foundation platform, so processes such as new-student onboarding, dormitory transfers, and departures automatically trigger permission changes, achieving "enter once, apply across all scenarios."

新增人员

基础信息

\* 姓名

张三

2/50

\* 人员编号

20261201

8/20

\* 部门

新开普大学/历史学院/中国史2501

\* 身份

在职人员

性别

请选择性别

联系电话

请输入联系电话

0/11

证件号码

请输入证件号码

0/50

\* 有效期

2099-12-31

人脸照片



请上传jpg/png/jpeg/JPG格式的图片,且不超过5M

更多信息

>

保存

关闭

## 4.4. Device Management

Provides centralized management for access controllers, card readers, facial recognition terminals, turnstiles, smart locks, and other device types, including device registration, parameter configuration, grouping, real-time status monitoring, OTA remote upgrades, and simplified deployment based on QR-code scanning.

新增人脸平板设备

\* 设备名称

1号楼人脸平板进门1

10/50

设备类型

人脸平板

\* 设备型号

F961161

\* 区域

1号楼

开通模式

TMS开通

\* 参数组

门禁通道预置参数组

\* 联动闸机

是

\* 进出方向

进

设备配网信息

应用模板

\* 设备IP地址

192.168.1.xxx

0/15

\* 子网掩码

255.255.255.0

0/15

\* 网关

192.168.50.1

0/15

首选DNS

192.168.1.8

0/15

备用DNS

192.168.8.1

\* 服务端地址

ip(192.168.10.55)或者域名

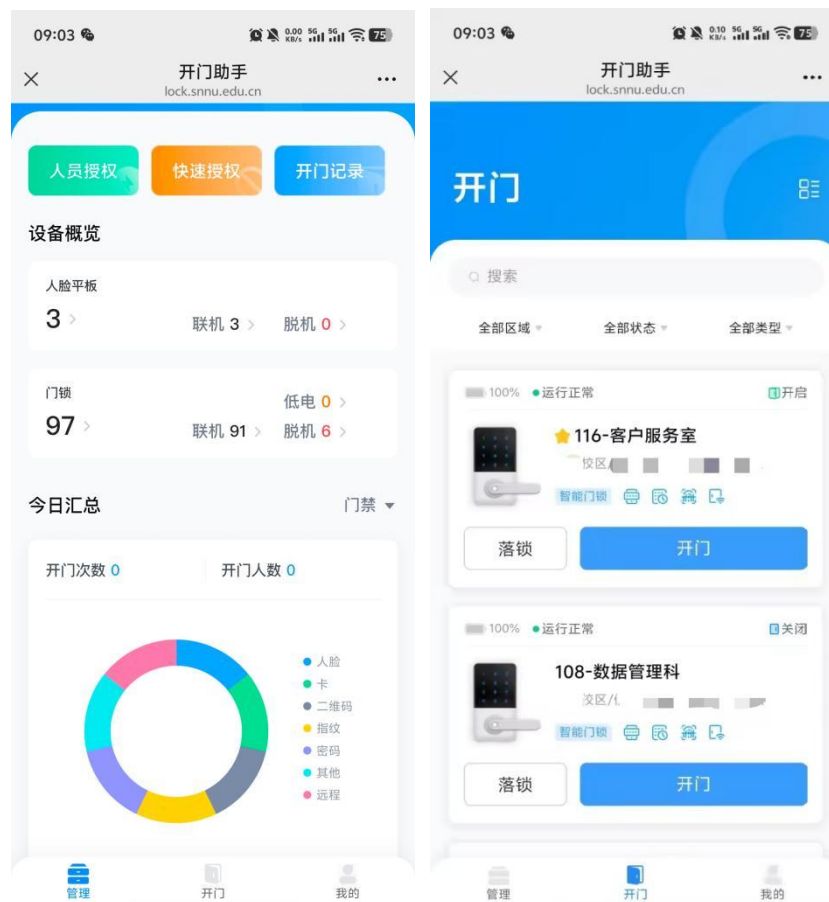
0/255

保存

关闭

## 4.5. Mobile App Functions (Optional)

Provides mobile applications for both administrators and end users. The administrator app supports remote door opening, one-click inspection, and real-time alert viewing; the user app supports mobile virtual-card access, QR-code scanning in either direction, and dormitory entry/exit queries.



## 4.6. System Management

Provides system parameter configuration, hierarchical role and permission management, operation audit logs, and other management capabilities to ensure system operations are traceable, auditable, and controllable.

角色名称:

请输入 角色名称

角色别名:

请输入 角色别名

搜索

重置

新增

删除

| <input type="checkbox"/> | # | 角色名称  | 角色别名          | 角色排序 | 操作                                                                                         |
|--------------------------|---|-------|---------------|------|--------------------------------------------------------------------------------------------|
| <input type="checkbox"/> | 1 | 管理员   | admin         | 2    | <a href="#">查看</a> <a href="#">编辑</a> <a href="#">删除</a> <a href="#">更多</a> <span>▼</span> |
| <input type="checkbox"/> | 2 | 访客    | visitor       | 3    | <a href="#">查看</a> <a href="#">编辑</a> <a href="#">删除</a> <a href="#">更多</a> <span>▼</span> |
| <input type="checkbox"/> | 3 | 用户    | user          | 4    | <a href="#">查看</a> <a href="#">编辑</a> <a href="#">删除</a> <a href="#">更多</a> <span>▼</span> |
| <input type="checkbox"/> | 4 | 家属    | family        | 5    | <a href="#">查看</a> <a href="#">编辑</a> <a href="#">删除</a> <a href="#">更多</a> <span>▼</span> |
| <input type="checkbox"/> | 5 | 参数审批员 | paramApproval | 9    | <a href="#">查看</a> <a href="#">编辑</a> <a href="#">删除</a> <a href="#">更多</a> <span>▼</span> |
| <input type="checkbox"/> | 6 | 业务管理员 | Business      | 10   | <a href="#">查看</a> <a href="#">编辑</a> <a href="#">删除</a> <a href="#">更多</a> <span>▼</span> |
| <input type="checkbox"/> | 7 | 业务管理  | Busi          | 11   | <a href="#">查看</a> <a href="#">编辑</a> <a href="#">删除</a> <a href="#">更多</a> <span>▼</span> |
| <input type="checkbox"/> | 8 | 在职人员  | work          | 12   | <a href="#">查看</a> <a href="#">编辑</a> <a href="#">删除</a> <a href="#">更多</a> <span>▼</span> |

| 用户管理                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 运营看板 | 设备监控          | 用户人脸管理 | 授权记录 | 审计日志                | 更多        |                          |                                                                  |      |     |      |      |     |      |      |    |                          |   |               |       |     |                     |        |    |          |  |                          |   |               |       |     |                     |        |    |          |  |                          |   |               |       |     |                     |      |    |    |  |                          |   |               |       |     |                     |           |    |                                                                  |  |                          |    |               |       |     |                     |           |    |                                                              |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------------|--------|------|---------------------|-----------|--------------------------|------------------------------------------------------------------|------|-----|------|------|-----|------|------|----|--------------------------|---|---------------|-------|-----|---------------------|--------|----|----------|--|--------------------------|---|---------------|-------|-----|---------------------|--------|----|----------|--|--------------------------|---|---------------|-------|-----|---------------------|------|----|----|--|--------------------------|---|---------------|-------|-----|---------------------|-----------|----|------------------------------------------------------------------|--|--------------------------|----|---------------|-------|-----|---------------------|-----------|----|--------------------------------------------------------------|--|
| <div><div>模块名: 授权管理 操作类型: 修改</div><div>搜索 清空</div></div> <div><div>①选择模块名称，操作类型</div><div>②点击搜索查询</div></div> <table><tr><th><input type="checkbox"/></th><th>#</th><th>记录编号</th><th>操作人</th><th>所在部门</th><th>操作时间</th><th>模块名</th><th>操作类型</th><th>描述信息</th><th>操作</th></tr><tr><td><input type="checkbox"/></td><td>6</td><td>2887432800460</td><td>admin</td><td>新开普</td><td>2023-05-11 13:03:54</td><td>内容信息管理</td><td>修改</td><td>修改内容联动配置</td><td></td></tr><tr><td><input type="checkbox"/></td><td>7</td><td>2887431859148</td><td>admin</td><td>新开普</td><td>2023-05-11 13:03:51</td><td>内容信息管理</td><td>修改</td><td>修改内容联动配置</td><td></td></tr><tr><td><input type="checkbox"/></td><td>8</td><td>2887427319244</td><td>admin</td><td>新开普</td><td>2023-05-11 13:03:33</td><td>内容管理</td><td>修改</td><td>新增</td><td></td></tr><tr><td><input type="checkbox"/></td><td>9</td><td>2887416976588</td><td>admin</td><td>新开普</td><td>2023-05-11 13:02:53</td><td>移动端岗位权限管理</td><td>修改</td><td>新增或修改移动端岗位<br/>权限,岗位: 288726480<br/>9676授权菜单: 1授权<br/>开门介质: 1,2,3,4</td><td></td></tr><tr><td><input type="checkbox"/></td><td>10</td><td>2887414858956</td><td>admin</td><td>新开普</td><td>2023-05-11 13:02:44</td><td>移动端岗位权限管理</td><td>修改</td><td>新增或修改移动端岗位<br/>权限,岗位: 288726064<br/>0460授权菜单: 1,2,3授<br/>权开门介质:</td><td></td></tr></table> <div>共 26 条 10条/页 &lt; 1 2 3 &gt; 前往 1 页</div> |      |               |        |      |                     |           | <input type="checkbox"/> | #                                                                | 记录编号 | 操作人 | 所在部门 | 操作时间 | 模块名 | 操作类型 | 描述信息 | 操作 | <input type="checkbox"/> | 6 | 2887432800460 | admin | 新开普 | 2023-05-11 13:03:54 | 内容信息管理 | 修改 | 修改内容联动配置 |  | <input type="checkbox"/> | 7 | 2887431859148 | admin | 新开普 | 2023-05-11 13:03:51 | 内容信息管理 | 修改 | 修改内容联动配置 |  | <input type="checkbox"/> | 8 | 2887427319244 | admin | 新开普 | 2023-05-11 13:03:33 | 内容管理 | 修改 | 新增 |  | <input type="checkbox"/> | 9 | 2887416976588 | admin | 新开普 | 2023-05-11 13:02:53 | 移动端岗位权限管理 | 修改 | 新增或修改移动端岗位<br>权限,岗位: 288726480<br>9676授权菜单: 1授权<br>开门介质: 1,2,3,4 |  | <input type="checkbox"/> | 10 | 2887414858956 | admin | 新开普 | 2023-05-11 13:02:44 | 移动端岗位权限管理 | 修改 | 新增或修改移动端岗位<br>权限,岗位: 288726064<br>0460授权菜单: 1,2,3授<br>权开门介质: |  |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | #    | 记录编号          | 操作人    | 所在部门 | 操作时间                | 模块名       | 操作类型                     | 描述信息                                                             | 操作   |     |      |      |     |      |      |    |                          |   |               |       |     |                     |        |    |          |  |                          |   |               |       |     |                     |        |    |          |  |                          |   |               |       |     |                     |      |    |    |  |                          |   |               |       |     |                     |           |    |                                                                  |  |                          |    |               |       |     |                     |           |    |                                                              |  |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 6    | 2887432800460 | admin  | 新开普  | 2023-05-11 13:03:54 | 内容信息管理    | 修改                       | 修改内容联动配置                                                         |      |     |      |      |     |      |      |    |                          |   |               |       |     |                     |        |    |          |  |                          |   |               |       |     |                     |        |    |          |  |                          |   |               |       |     |                     |      |    |    |  |                          |   |               |       |     |                     |           |    |                                                                  |  |                          |    |               |       |     |                     |           |    |                                                              |  |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 7    | 2887431859148 | admin  | 新开普  | 2023-05-11 13:03:51 | 内容信息管理    | 修改                       | 修改内容联动配置                                                         |      |     |      |      |     |      |      |    |                          |   |               |       |     |                     |        |    |          |  |                          |   |               |       |     |                     |        |    |          |  |                          |   |               |       |     |                     |      |    |    |  |                          |   |               |       |     |                     |           |    |                                                                  |  |                          |    |               |       |     |                     |           |    |                                                              |  |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 8    | 2887427319244 | admin  | 新开普  | 2023-05-11 13:03:33 | 内容管理      | 修改                       | 新增                                                               |      |     |      |      |     |      |      |    |                          |   |               |       |     |                     |        |    |          |  |                          |   |               |       |     |                     |        |    |          |  |                          |   |               |       |     |                     |      |    |    |  |                          |   |               |       |     |                     |           |    |                                                                  |  |                          |    |               |       |     |                     |           |    |                                                              |  |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 9    | 2887416976588 | admin  | 新开普  | 2023-05-11 13:02:53 | 移动端岗位权限管理 | 修改                       | 新增或修改移动端岗位<br>权限,岗位: 288726480<br>9676授权菜单: 1授权<br>开门介质: 1,2,3,4 |      |     |      |      |     |      |      |    |                          |   |               |       |     |                     |        |    |          |  |                          |   |               |       |     |                     |        |    |          |  |                          |   |               |       |     |                     |      |    |    |  |                          |   |               |       |     |                     |           |    |                                                                  |  |                          |    |               |       |     |                     |           |    |                                                              |  |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 10   | 2887414858956 | admin  | 新开普  | 2023-05-11 13:02:44 | 移动端岗位权限管理 | 修改                       | 新增或修改移动端岗位<br>权限,岗位: 288726064<br>0460授权菜单: 1,2,3授<br>权开门介质:     |      |     |      |      |     |      |      |    |                          |   |               |       |     |                     |        |    |          |  |                          |   |               |       |     |                     |        |    |          |  |                          |   |               |       |     |                     |      |    |    |  |                          |   |               |       |     |                     |           |    |                                                                  |  |                          |    |               |       |     |                     |           |    |                                                              |  |

## 五、 Supporting Hardware Terminals

Newcapec's full range of in-house access-management hardware covers three major scenarios: access control, turnstiles, and smart locks. All devices are centrally managed through a unified platform, support "QR code + card + face" multimodal authentication, and are protected by proprietary intellectual property and registered software copyrights..

## 5.1. Access Control Devices

| Product Category            | Representative Model                      | Core Capabilities                                                                                                                                 |
|-----------------------------|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Access Controller           | I220/I240 Series                          | ARM platform, TCP/IP communication, support for 60,000 users / 200,000 offline records, fire-alarm linkage, and offline operation                 |
| Access Card Reader          | F901/F921/F931/F951 Series                | 13.56 MHz RF card reading, password-based door opening, QR-code door opening, and Wiegand protocol output                                         |
| Facial Recognition Terminal | 8-inch wall-mounted / 7-inch wall-mounted | Binocular liveness detection, under-screen card reading, front/rear QR-code scanning, and offline 1:N facial recognition for 50,000–100,000 faces |
| Electric Lock               | Electromagnetic lock / electric bolt lock | Unlock on power failure, door-status feedback, fire-alarm linkage, suitable for wooden doors / glass doors / fire-rated doors                     |

## 5.2. Turnstile Devices

| Product Category            | Representative Model                              | Core Capabilities                                                                                                                                                                                      |
|-----------------------------|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pedestrian Turnstile        | J510 Series (flap barrier / swing barrier)        | 304 stainless steel, 6–12 pairs of infrared sensors for anti-pinch and anti-tailgating, automatic opening on power failure, fire-alarm linkage, and average daily throughput of 20–40 persons per lane |
| Facial Recognition Terminal | 8-inch pedestal-mounted / 7-inch pedestal-mounted | Pedestal installation, binocular liveness detection, optional temperature-measurement module, and offline recognition for 50,000–100,000 faces                                                         |

## 5.3. Smart Lock Devices

| Product Category | Representative Model      | Core Capabilities                       |
|------------------|---------------------------|-----------------------------------------|
| Wireless         | I318 Series / I316 Series | Supports multiple communication methods |

|                            |                                         |                                                                                                                                         |
|----------------------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Networked Smart Lock       |                                         | including 4G/Wi-Fi/LoRa/SUB-1G, chip-level encryption, low-battery warnings, tamper alarms, and remote permission issuance              |
| Intelligent Data Collector | SUB-1G Base Station / LoRa Base Station | Wireless collection and forwarding of smart-lock data, support for large-scale smart-lock networking, and stable low-power transmission |

## 六、 Application Scenarios

### 6.1. Access-Controlled Door Scenario

Suitable for access management in offices, laboratories, dormitories, and other enclosed or semi-enclosed areas. Standard areas can use access card readers or facial recognition terminals for basic identity verification; high-security areas can use smart locks with batch permission issuance and revocation. Users can open doors using cards, QR codes, facial recognition, mobile apps, and other methods. The system automatically records entry and exit times, and administrators can query activity trails by location or person.

### 6.2. Facial Recognition Turnstile Scenario

Suitable for daily access management at main entrances, libraries, stadiums, dormitory buildings, and other public areas. Facial recognition turnstiles enable intelligent management of personnel entry and exit and effectively block unauthorized persons. Together with AI cameras, the system automatically captures and raises alarms for abnormal behavior such as climbing over barriers, tailgating, and prolonged loitering. Entry/exit data can be linked with the attendance system to enable proactive security warnings.

### 6.3. Office Scenario

- **Unified Authorization and Hierarchical Management:** By campus, building, and floor, sub-administrators can be assigned to authorize and maintain access permissions for personnel in their departments.
- **Administrative Management with Intelligent Linkage:** Door-opening records can serve as attendance records; integration with smart-building systems enables whole-office automation.
- **Flexible Control for Secure and Convenient Access:** Supports normally open mode, scheduled locking, temporary passwords, remote door opening, and automatic alert reporting.
- **Space Asset Optimization and Improved Efficiency:** Big-data analysis identifies underused offices and provides a basis for space-asset management decisions.

### 6.4. Dormitory / Residence Hall Scenario

- **Linked Permissions with No Manual Configuration:** For new residents, room transfers, and departures, door-opening permissions are linked to accommodation assignments with one click.
- **Efficient Dormitory Management:** One-click door opening, one-click inspection, and remote door opening reduce manual workload.
- **Multiple Security Measures:** Door-close reminders, dynamic temporary passwords, tamper alarms, chip-level encryption, and other security strategies.
- **Data-Supported Accommodation Decisions:** Provides accommodation

analytics including dormitory return analysis, door-opening time analysis, late returns, and multi-day absences.

## 七、 Server Requirements

### 7.1. Operating System

All servers use the Ubuntu operating system.

### 7.2. Configuration Requirements

#### 7.2.1.Option 1: Separate Application and Database Servers

Supported Scale: **Up to 1,000 smart locks + 100 facial recognition terminals**

Application Server × 1: 8 cores / 16 GB RAM

Database Server × 1: 8 cores / 16 GB RAM

#### 7.2.2.Option 2: Integrated Deployment of Application and Database

Supported Scale: **Up to 500 smart locks + 50 facial recognition terminals**

Server × 1 (integrated application and database deployment): 8 cores 16G, storage 500GB

#### 7.2.3.Note:

If the site exceeds 1,000 smart locks + 100 facial recognition terminals, server resource requirements must be evaluated separately.

## 八、 Network Requirements

System deployment requires network connectivity between two types of nodes: client computers and the application server:

- **Client Computer:** Must be able to access the Internet (to download IoT

platform applications) and the application server (to receive/push the installation package). If Internet access is unavailable, prepare an offline installation package in advance.

● **Application Server:**

| Ports Required for Platform Access |          |                                                                       |                                                                          |
|------------------------------------|----------|-----------------------------------------------------------------------|--------------------------------------------------------------------------|
| Port                               | Required | Purpose                                                               | Access Target                                                            |
| 9080                               | Required | Container platform access port                                        | Client computer used for administration and O&M                          |
| 9085                               | Required |                                                                       | Client computer used for administration and O&M                          |
| 30100                              | Required | Access management system administrator portal access port             | Used for administration and O&M by the client computer                   |
| 30180                              | Required |                                                                       | Used for administration, O&M, and daily operation by the client computer |
| 22080                              | Required | Management page access port for the integrated IoT scheduling service | Client computer used for administration and O&M                          |
| 31306                              | Optional | Access port for the integrated MySQL database                         | Client computer used for administration and O&M                          |

● **Ports Required by Terminal Devices:**

| Ports required by access control devices and facial recognition terminals |          |                                                    |               |
|---------------------------------------------------------------------------|----------|----------------------------------------------------|---------------|
| Port                                                                      | Required | Purpose                                            | Access Target |
| 22088                                                                     | Optional | Facial Recognition Terminal F961 Newcaptec Manager | Device        |
| 22085                                                                     | Optional | Facial Recognition Terminal F961 application       | Device        |
| 28972                                                                     | Optional | Facial Recognition Terminal F972                   | Device        |
| 21883                                                                     | Optional | Facial Recognition Terminal F971                   | Device        |
| 22035                                                                     | Optional | Access Controller I2                               | Device        |

| Ports required by smart lock devices |          |         |               |
|--------------------------------------|----------|---------|---------------|
| Port                                 | Required | Purpose | Access Target |

|                       |          |                                                                                                                                             |                                                       |
|-----------------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| 28972                 | Optional | Lora Smart Lock gateway                                                                                                                     | gateway Device                                        |
| 21883                 | Optional | 4G/Wi-Fi Smart Lock                                                                                                                         | Smart Lock Device                                     |
| <a href="#">22035</a> | Optional | Base station for SUB-1G smart locks                                                                                                         | Base Station Device                                   |
| 28081                 | Optional | For smart locks not commissioned through the simplified process, the mobile phone must access this port when commissioning devices via NFC. | The mobile phone can connect to this port over Wi-Fi. |