NEIL LEONORA - JESSE DE LA ROSA - MARK GOODBURLET - RYAN SANTOS - SONNY TJAHYADI - ANDREW CABALFIN

Presents:

IPS – INTELLIGENT PARKING SYSTEM
Automatic Permit Validation
Easily Accommodate Visitors
Immediate Alert System
Monitor Parking Spaces
IPSS SYSTEM

MAIN MODULE

SENSOR MODULE

RFID Antenna

Magnetic Sensor

RFID Reader
PARTS

- LCD
- KEYPAD

FUNCTIONALITY

-COMMUNICATE WITH USER
LED’S & SPEAKER

PARTS
- LED’S
- SPEAKER

FUNCTIONALITY
- ALARM UNIT
PARTS
-HONEYWELL

FUNCTIONALITY
-DETECTS VEHICLE
HMC1001
R=600-1200 Ω

INA126

Vcc = 5V
Vout

Vcc = 5V

Potentiometer
Vcc = 5V

PIC12 F675

5V

Vcc = 5V

Vcc = 5V

VREF ≈ 1V

5V

Digital Input

Analog Input

Not Used

Not Used

Not Used

R=800Ω

R=5KΩ

20KΩ

5V

5V

Vcc
PARTS
- ID2 RFID READER

FUNCTIONALITY
-AUTHORIZES
PERMANENT USERS
**LF RFID Reader**

ID2 Innovations:
- + Low-Cost
- + ASCII Data
- No Internal Antenna

Custom Antenna (10x20in, 12in Reading Range)

**FUNCTIONALITY**

Authorizes permanent users
RFID: 1234567890

Signal From PIC

PIC 16F887

RFID Reader

RFID TAG
I2C COMMUNICATION

WEB SERVER

SM1 0x16

SM2 0x17

SM3 0x18

0x17

CLOCK

DATA
IPS COMMUNICATION

SENSOR MODULE

Scanning RFID... Vehicle Authorized

DATA

OpCode

Data (10 BYTES)

CLOCK

WEB SERVER

OpCode

Compare W/ Database...
SENSOR MODULE

- Keypad
- LCD
- LED'S
- Speaker
- Sensors
- RFID Reader
- Magnetic Sensor
- PIC12F675
- ADC

MAIN MODULE

- ColdFire
- I2C
- Flash
- Web Pages
- Ethernet 10/100
- I2C
- Power Supply
- Voltage Regulator
- Power Supply
- SDSU Network

Additional Components:
- PIC16F887
- UART
- I2C
- 3.3V
- 5V
- 7V
- AC
WEB SERVER

PARTS

-MOD5270

FUNCTIONALITY

-STORE RECORDS
-RETRIEVE RECORDS
-MANAGE SM’S
-MONITOR SM’S
```
Struct Database{
  char Rfid_ID1;
  char Rfid1_Num[20];
  char Rfid1_Name[20];
  char Rfid1_Date[20];
  char Rfid_ID2;
  char Rfid2_Num[20];
  char Rfid2_Name[20];
  char Rfid2_Date[20];
  --
  --
}

Void SaveRFID (……);
Void DisplayRFID (…….);
```

<table>
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<tr>
<th>ID</th>
<th>RFID#</th>
<th>NAME</th>
<th>DATE</th>
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<tbody>
<tr>
<td>1</td>
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PROJECT PLAN

FEBRUARY
Determine Parts:
- RFID Reader
- Vehicle Detection Sensor
- Web Server

MARCH
Unit Programming
- Web Server: Database, Web Pages
- Communication: I2C
- Sensors
- IO: LCD, Keypad, Led’s, Speaker

APRIL
Integration, Fabrication and Testing
- PCB’s, Housing, Cables
- Debug & Fix
- Test Cases, Crash Tests
<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
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<tbody>
<tr>
<td><strong>Sensor Module:</strong></td>
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<tr>
<td>RFID Module ID2</td>
<td>$39.95</td>
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<td>RFID Antenna</td>
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<td>LCD</td>
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<td>Buzzers</td>
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<td><strong>Main Module:</strong></td>
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<tr>
<td>Embedded Web Server - Netburner MOD5270</td>
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<td>Enclosures</td>
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**TOTAL COST** $185.90
IPS
-Detects Vehicles
-Authorize Parking Spots
-Manages Parking Spots
-Monitor Parking Spots

MAY 9th DEMO
-Get answers to more ?’s
-See IPS in action
QUESTIONS