

# IOT – FROM CONCEPT TO PRODUCTION

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by

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# SMART WIRELESS PRODUCT CAMERA + RFID + GARUDSMS

## CLOUD COMPUTING

### BIG DATA



GATE-1  
RFID READER +  
WIRELESS CAMERA



GATE-2  
RFID READER +  
WIRELESS CAMERA



SCHOOL  
PRINCIPAL'S  
OFFICE



GATE-4  
RFID READER +  
WIRELESS CAMERA



GATE-3  
RFID READER +  
WIRELESS CAMERA

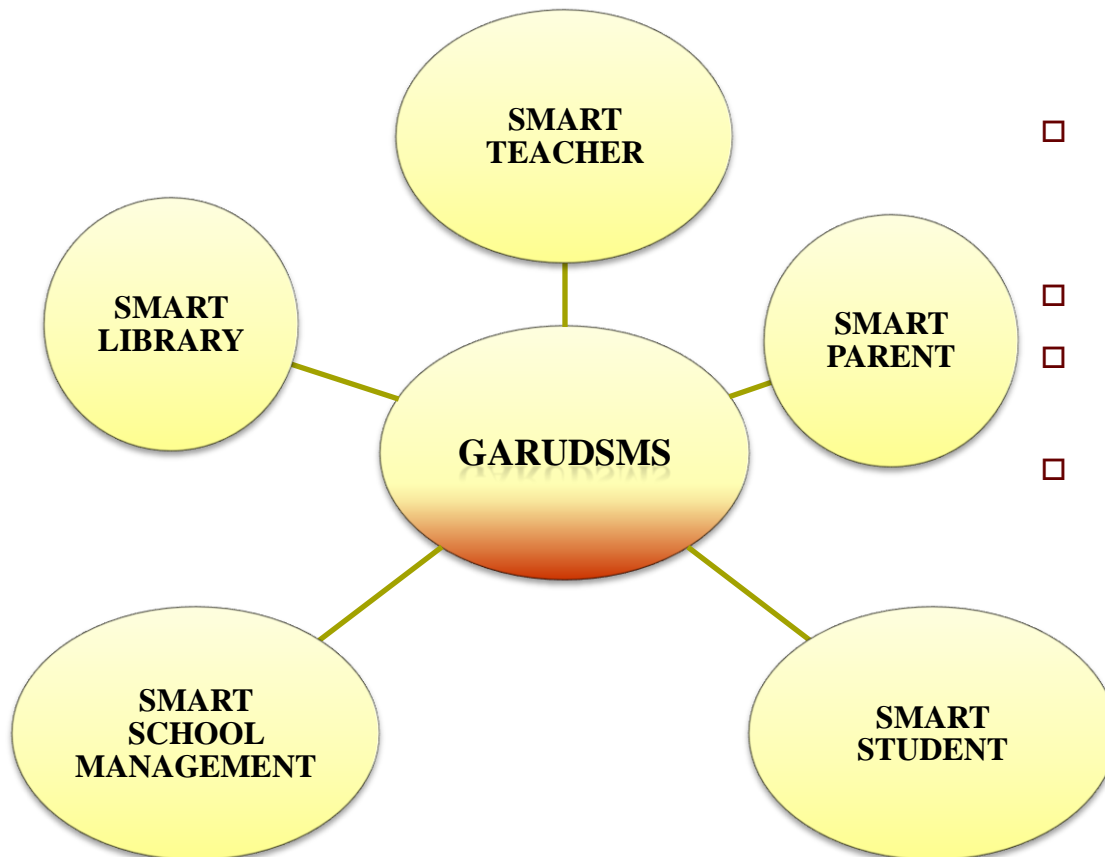


USERS  
OUTSIDE  
SCHOOL



# GARUDSMS-MAKE EVERYBODY SMART FAST AND EFFICIENT

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- ❑ PARENTS WILL GET EMAIL/SMS ON ENTRY/EXIT OF STUDENT
- ❑ STUDENTS WILL USE ALL FACILITIES THROUGH THIS SMART CARD
- ❑ AUTOMATIC ATTENADNCE
- ❑ AUTOMATIC BOOK TRANSACTION
- ❑ INFORM PARENTS ABOUT PAYMENT, ASSIGNMENT, MEETINGS

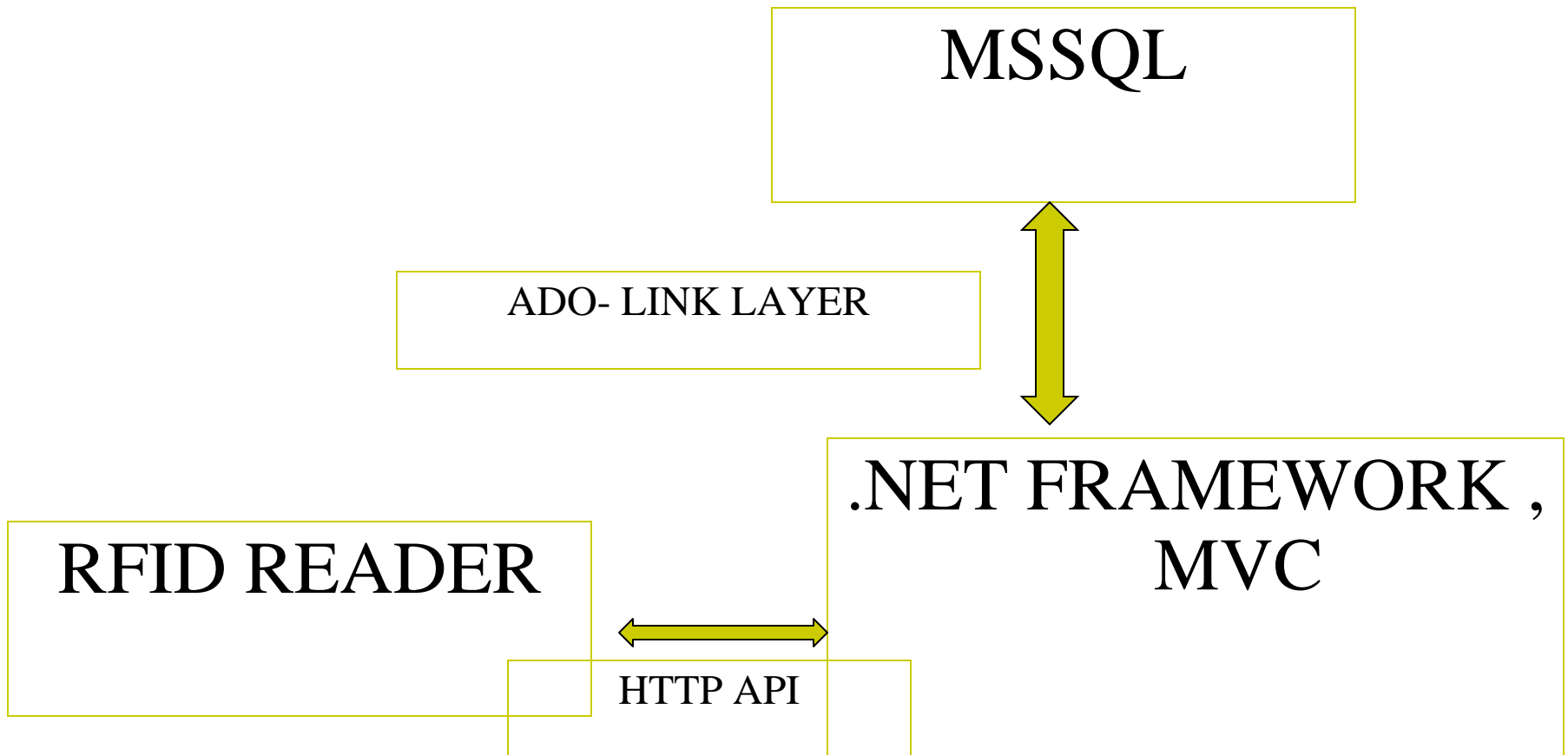
# RFID SYSTEM

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- RFID READER
  - MICROCONTROLLER + READER
- RFID CARDS
- WEB SERVER- CLOUD PLATFORM
  - MSSQL DATA BASE-MVC-.NET
  - ADO CONNECTION STRING
  - HTTP API PUSH PULL DATA
- EMAIL AND SMS SERVICE

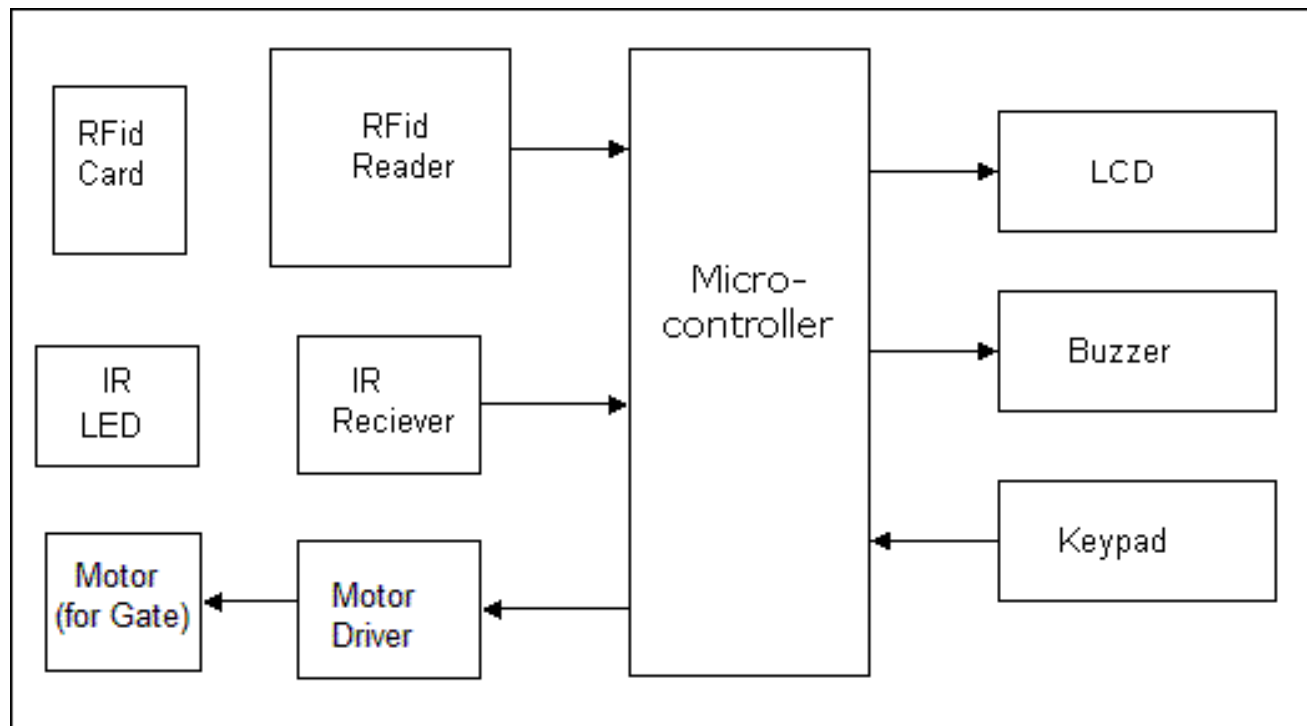
# THE ARCHITECTURE

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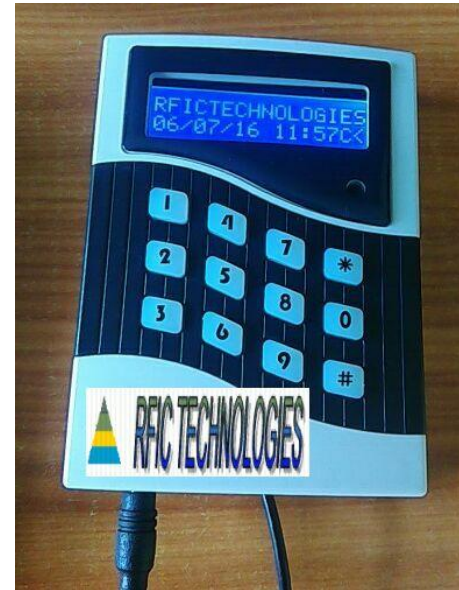
# RFID READER

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# THE READERS

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# www.garudsms.com

← → ↻  ☆ ☰

**GARUD INTERNATIONAL SCHOOL**

 Select Language ▼

Hello, !

[Home](#) [Student](#) [Employee](#) [Attendance](#) [Settings](#) [Payment](#) [Messaging](#) [Assets](#)

## Home Page

RFID BASED WIRELESS EMBEDDED SYSTEM- WIFI OR GSM OR USB OR GPS RFID READERS

GARUD INTERNATIONAL SCHOOL IS THE BEST SCHOOL WHICH PROVIDES THE BEST TEACHING STAFF AND EASY LEARNING PROCESS.

WE ARE FULLY AUTOMATED WITH RFID AND WIRELESS CAMERA BASED SYSTEM

PRODUCT OF [GARUDSMS.COM](http://GARUDSMS.COM) AND [RFIC TECHNOLOGIES](http://RFIC TECHNOLOGIES)



# Push or pull data from server configuration

← → ↻

[Home](#) [Student](#) [Employee](#) [Attendance](#) [Settings](#) [Payment](#) [Messaging](#)

## ADD BIOMETRIC OR RFID READER

NEED TO CONFIGURE ONE TIME FOR THE READER TO PUSH/PULL DATA FROM THE SERVER OR WEB OR CLOUD.  
1. WIFI OR GPRS RFID READER-ADD DEVICE ID/LOCATION AND WEB FOLDER ADDRESS  
2. DESKTOP READERS -ADD COMPUTER NAME AND PORT NAME  
LEAVE BLANK IF INVALID

### LONG RANGE WIFI OR GPRS READER (WEB)

READER DEVICE ID

WEB ADDRESS

### SHORT RANGE WIFI OR GPRS READER (WEB)

READER DEVICE ID

# Reader configuration

<b>Date Time</b> (Ex: ddmmyyyyhhmmss)	<input type="text"/>	<input type="button" value="Send"/>
<b>OrgID and DeviceID</b> (Ex: 9999988)	<input type="text"/>	<input type="button" value="Send"/>
<b>Push Data Interval(Seconds)</b> (Ex: 120)	<input type="text"/>	<input type="button" value="Send"/>
<b>Enable/Disable Scrolling Display</b> (Ex: 1 or 0)	<input type="text"/>	<input type="button" value="Send"/>
<b>Enable/Disable Multiple Records</b> (Ex: 1 or 0)	<input type="text"/>	<input type="button" value="Send"/>
<b>Delete All Records</b> (Ex: 1)	<input type="text"/>	<input type="button" value="Send"/>
<b>Factory Reset</b> (Ex: 1)	<input type="text"/>	<input type="button" value="Send"/>
<b>Enable/Disable Other Protocol</b> (Ex: 1 or 0)	<input type="text"/>	<input type="button" value="Send"/>
<b>Start/Stop Gps Recording</b> (Ex: 1 or 0)	<input type="text"/>	<input type="button" value="Send"/>
<b>Enable/Disable Exit RFID</b> (Ex: 1 or 0)	<input type="text"/>	<input type="button" value="Send"/>
<b>Type of Reader(Entry/Exit)</b> (Ex: 1 or 0)	<input type="text"/>	<input type="button" value="Send"/>
<b>Enable/Disable SSL</b> (Ex: 1 or 0)	<input type="text"/>	<input type="button" value="Send"/>
<b>Reset WiFi Configuration</b> (Ex: 1)	<input type="text"/>	<input type="button" value="Send"/>
<b>Enable/Disable Sending UHF Data</b> (Ex: 1)	<input type="text"/>	<input type="button" value="Send"/>
<b>Set UHF Card Wait Time</b> (Ex: 1)(minutes)	<input type="text"/>	<input type="button" value="Send"/>

**Get Commands**

<b>Host URL</b>	<b>Data Interval</b>	<b>Company Name</b>	<b>Records Count</b>	<b>Exit RFID Status</b>	<b>UHFCardWa</b>
<b>Date Time</b>	<b>Firmware Version</b>	<b>Registered Mobile No</b>	<b>Multiple Records Status</b>	<b>TypeOfReader(Entry/Exit)</b>	
<b>APN Name</b>	<b>OrgID and DeviceID</b>	<b>Other Protocol Status</b>	<b>Gps Recording Status</b>	<b>SSL Status</b>	
<b>Response</b>	<a href="http://www.garudsms.com/disha/api/Rfid/Process?">www.garudsms.com/disha/api/Rfid/Process?</a> ,80				<input type="button" value="Clear"/>

# IOT –BASIC STRUCTURE

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- EMBEDDED SYSTEM CONNECTED TO INTERNET
  1. SENSORS SEND DATA TO SERVER
  2. DATA WILL BE STORED IN THE SERVER
  3. PROCESSING OF THE DATA AND ACTION

# What is an Embedded System?

Embedded systems (ES) = information processing systems embedded into a larger product

Examples:



Main reason for buying is **not** information processing

# INTERESTING PROJECTS

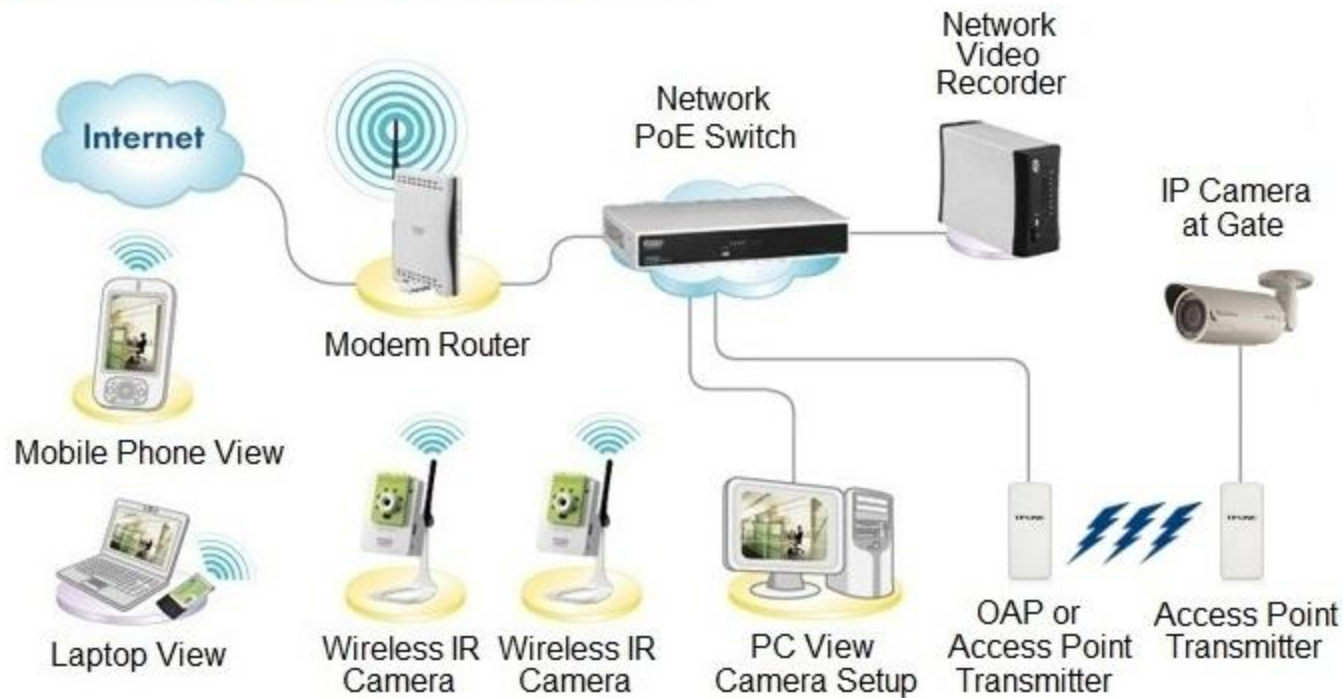
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## □ GPS TRACKING SYSTEMS

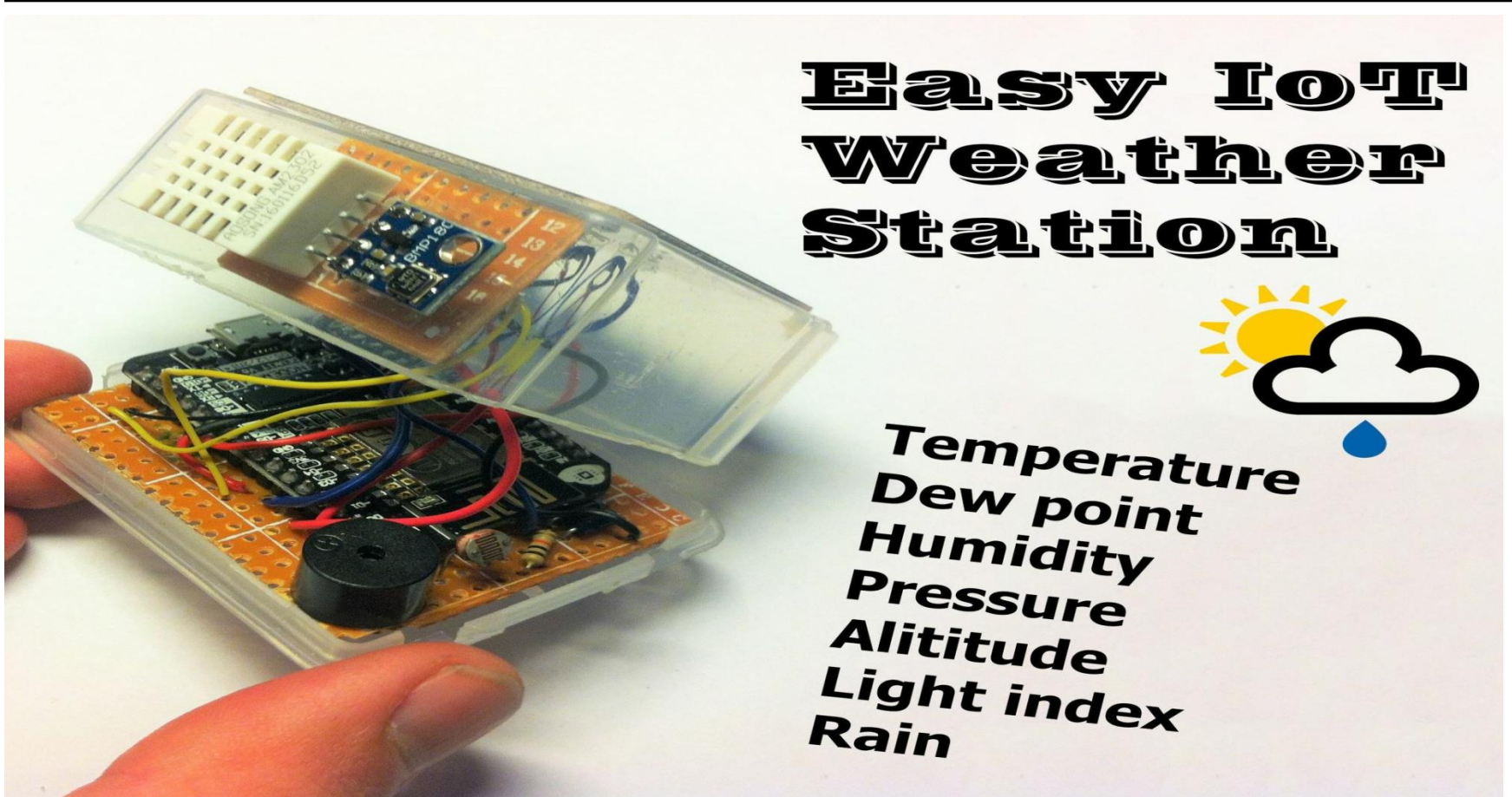


# WIRELESS CAMERA

## WIRELESS CAMERA NETWORK SETUP



# HOME WEATHER STATION

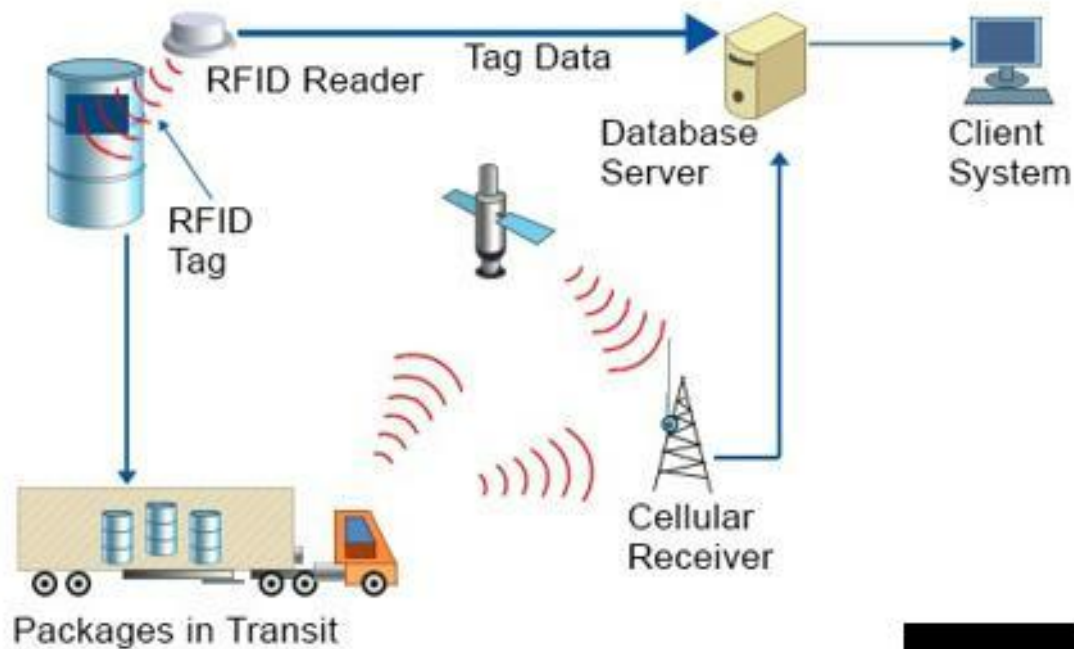


## Easy IoT Weather Station



Temperature  
Dew point  
Humidity  
Pressure  
Altitude  
Light index  
Rain

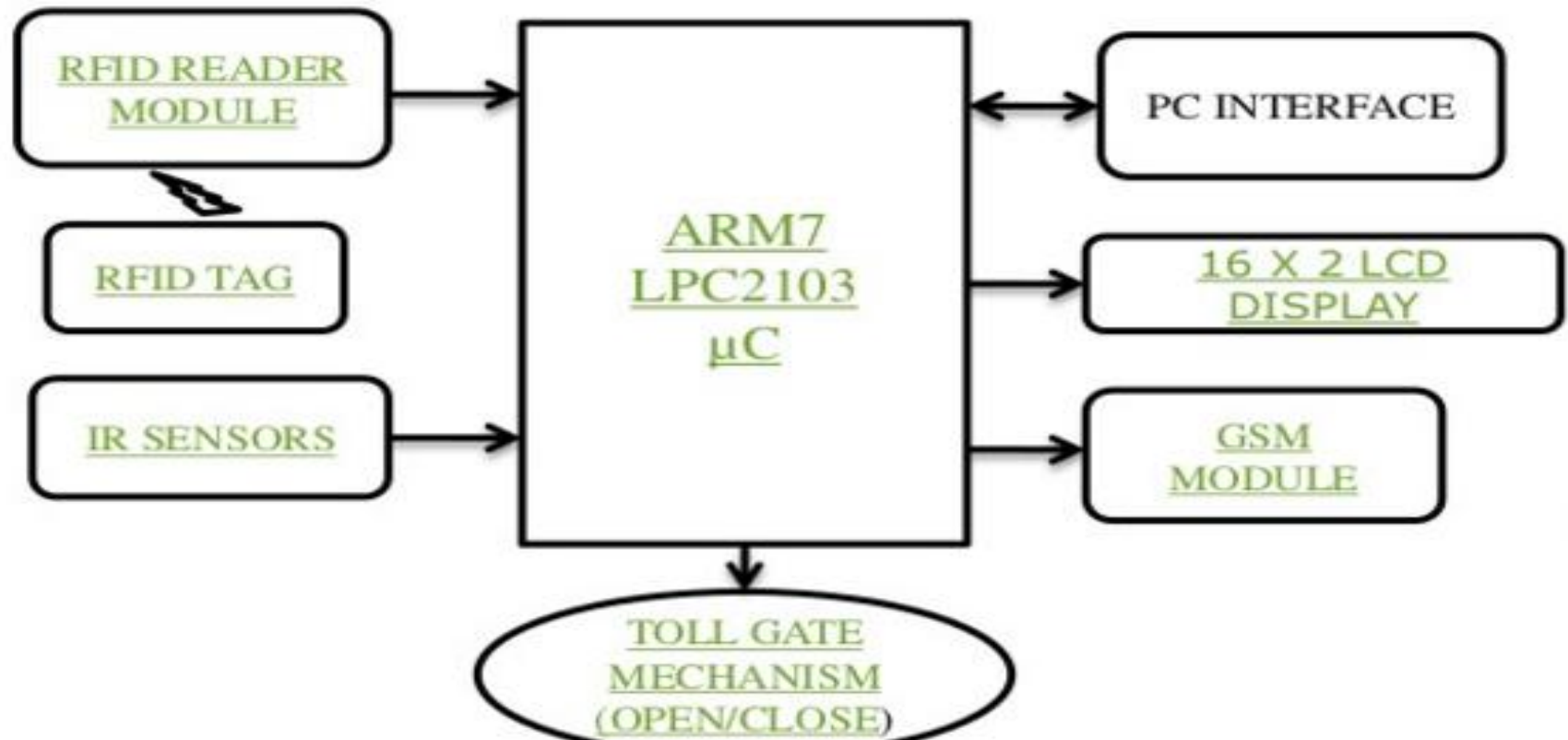
# RFID TRACKER






# RFID READER

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# RASPBERRY TEMP MONITOR



The image shows a Raspberry Pi desktop environment. On the left, a terminal window titled 'xrfGUI.py - /home/pi/Desktop/other/xrfGUI.py' displays the following Python code:

```
from Tkinter import *
import serial
import time

DEVICE = '/dev/ttyAMA0'
BAUD = 9600

root = Tk()

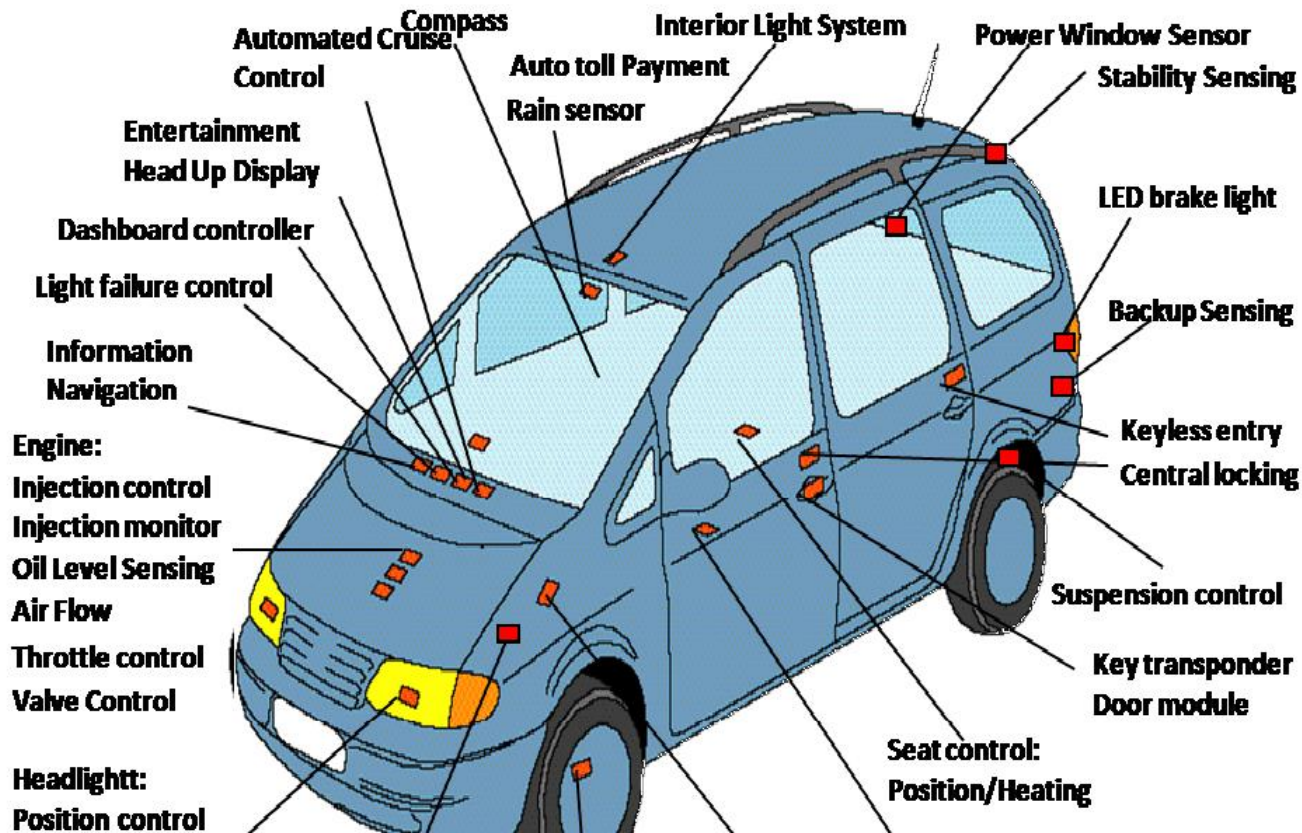
def updateTime() :
    ser = serial.Serial(DEVICE, BAUD)
    n = ser.inWaiting()
    if n == 4 :
        msg = ser.read(n)
        v.set(msg)
        ser.close()
    root.after(2000, updateTime)

v = StringVar()
Label(root, textvariable=v, font=("Helvetica", 240)).pack()
v.set('--.-')

root.after(2000, updateTime)
root.mainloop()
```

At the bottom of the terminal window, the status bar shows 'Ln: 20 Col: 50'. To the right, a Tkinter window titled 'tk' displays the temperature '21.0' in a large, bold, black font on a light gray background.

# SMART CAR



# THANKS

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