LOT Based Airport Parking System

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Abstract

There are several existing car parking systems and still those are undergoing developments. To overcome those backdrops we are propose a new system it works by using IoT, Raspberry pi, Wi-Fi(ESP8266X) module, IR sensors which we are used to detect the car which available in the parking slot or not. Here raspberry pi is a heart of the system; it will give the all directions to the iot module, LCD display, and also webpage which we are created. Use of automated system for car parking monitoring will reduce the human efforts.

Existing system

We are using AT89S52 as our controller. Controller is the main part of the entire system and a LPG sensor is interfaced to the MCU. Here we are using IR sensors to detect the vehicle in that parking slot. So if it is occupied, that information is available in the web and free slots are also shown so that one can have knowledge before coming there. This is to avoid waiting. We are using

Raspberry pi as our controller and IoT module is interfaced to view the slots using internet.
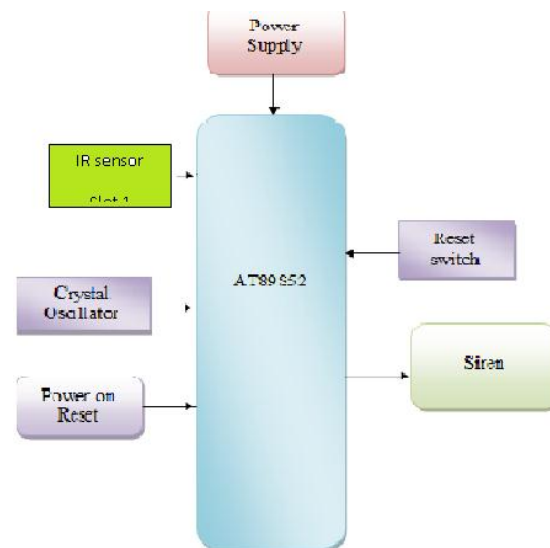
Draw back

IoT based Car Parking Management system for Smart cities, less human interaction, increases flexibility and security.

Proposed system

Now days in many airports and multiplex systems there is a severe problem for car parking systems. There are many slots for car parking, so to park a car one has to look for the all lanes. Additionally there is a great deal of men labor

included for this process for which there is whole lot of investment. So the need is to build up a framework which demonstrates specifically which stopping space is empty in any path. The project uses a system including infrared transmitter and receiver in every |side of the road and a LED & LCD display. So the person entering parking area can view using IoT module involved and can decide which slot to enter so as to park the car.

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**Block Diagram:**
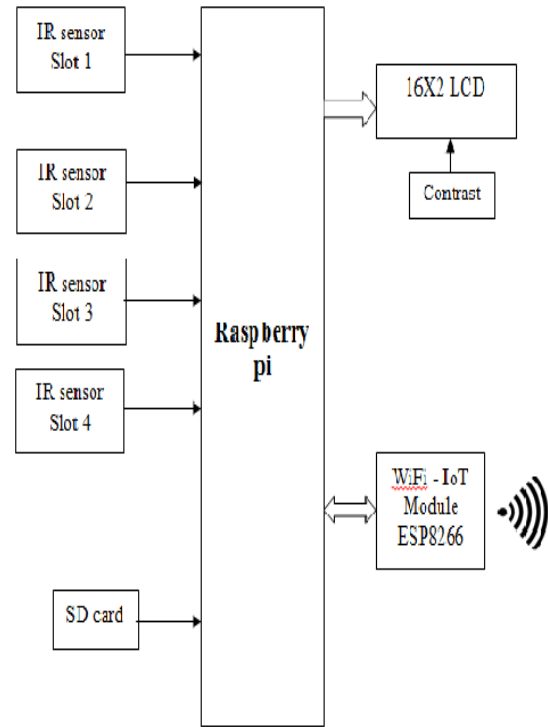
RASPBERRY-PI

The **Raspberry Pi** has a Broadcom system on a chip (SoC).

Features

- System Memory – 1GB LPDDR2
- Storage – micro SD card slot (push release type)
- Video & Audio Output – HDMI and AV via 3.5mm jack.
- Connectivity – 10/100M Ethernet
- USB – 4x USB 2.0 ports, 1x micro USB for power
- Expansion
  2×20 pin header for GPIOs
  Camera header
  Display header
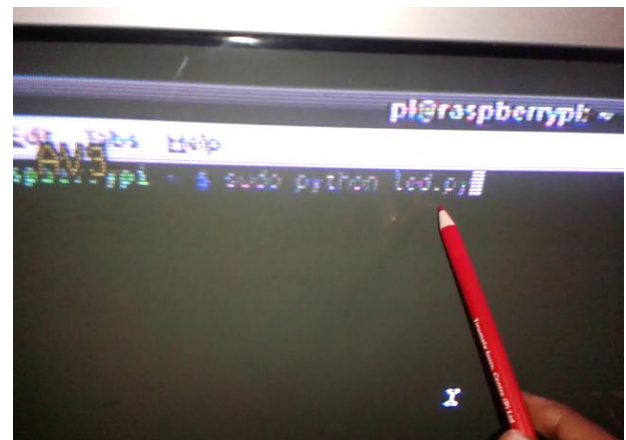- Power – 5V via micro USB port.
- Dimensions – 85 x 56 mm

Basic Hardware of Raspberry-PI
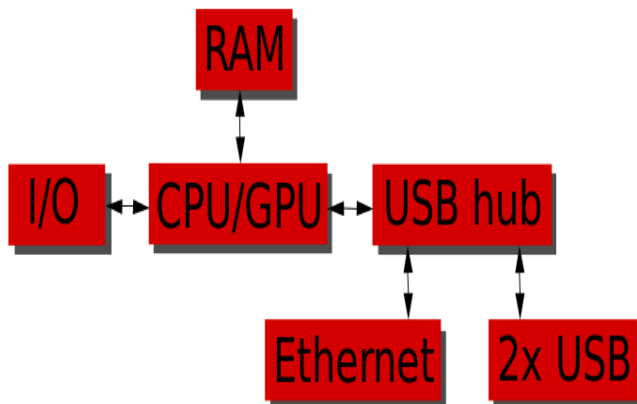
OS used in Raspberry pi is Linux
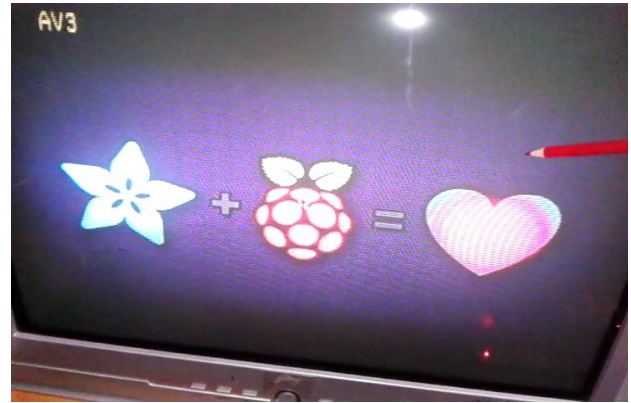
Coding will be done in Python/C language

LCD

LCD stands for Liquid Crystal Display. LCD is finding wide spread use replacing LEDs (seven segment LEDs or other multi segment LEDs) because of the following reasons:

| Command	RS	RW	D7	D6	D5	D4	D3	D2	D1	D0	Execution Time
Clear display	0	0	0	0	0	0	0	0	0	1	1.64mS
Cursor home	0	0	0	0	0	0	0	0	1	x	1.64mS
Entry mode set	0	0	0	0	0	0	0	1	I/D	S	40uS
Display on/off control	0	0	0	0	0	0	1	D	U	B	40uS
Cursor/Display Shift	0	0	0	0	0	1	D/C	R/L	x	x	40uS
Function set	0	0	0	0	1	DL	N	F	x	x	40uS
Set CGRAM address	0	0	0	1	CGRAM address						40uS
Set DDRAM address	0	0	1	DDRAM address							40uS
Read "BUSY" flag (BF)	0	1	BF	DDRAM address							-
Write to CGRAM or DDRAM	1	0	D7	D6	D5	D4	D3	D2	D1	D0	40uS
Read from CGRAM or DDRAM	1	1	D7	D6	D5	D4	D3	D2	D1	D0	40uS

These components are "specialized" for being used with the microcontrollers, which means that they cannot be activated by standard IC circuits. They are used for writing different messages on a miniature LCD.

LCD DISPLAY
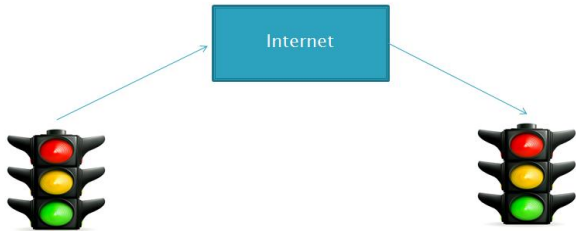
Interfacing diagram
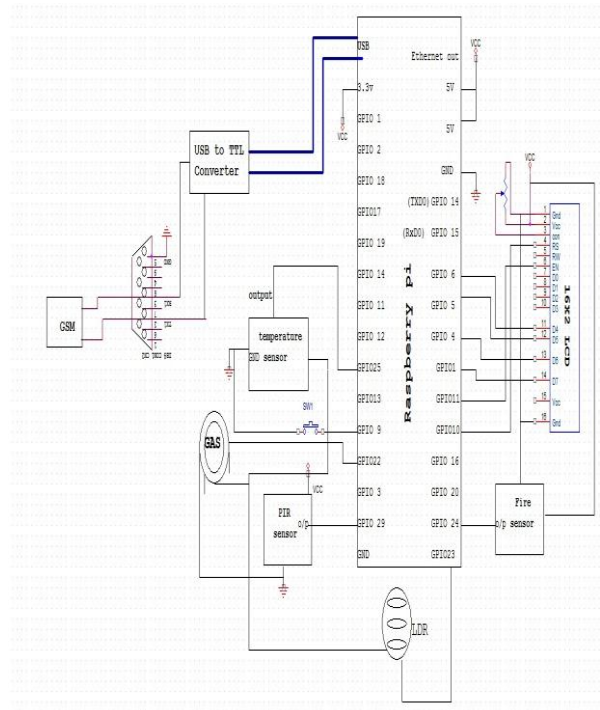
IOT MODULE

INTERNET OF THINGS

Internet is helping people to communicate each other using different applications

Traffic Light Wants to communicate to other traffic light using internet?

Internet of things helps the things to communicate each other using IoT module

ESP8266EX

The Internet of Things (IoT) is the network of physical objects or "things" embedded with electronics, software, sensors, and network connectivity, which enables these objects to collect and exchange data.

Wi-Fi module

ESP8266EX offers a complete and self-contained Wi-Fi networking solution; it can be used to host the application or to offload

Wi-Fi___33 networking functions from another application processor. When ESP8266EX hosts the application, it boots up directly from an external flash. In has integrated cache to improve the performance of the system in such applications. Alternately, serving as a Wi-Fi___33 adapter, wireless internet access can be added to any micro controller-based design with simple connectivity (SPI/SDIO or I2C/UART interface).
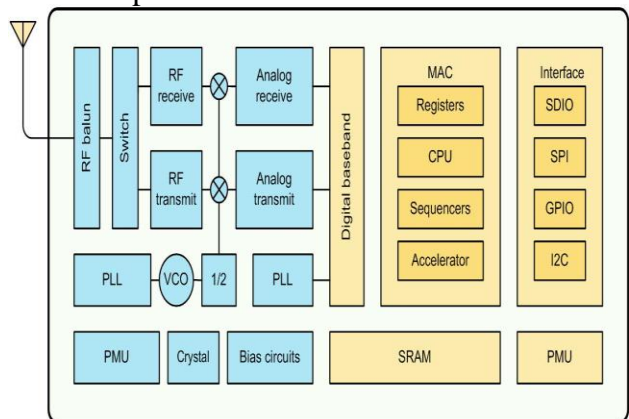
Advantages:

- Reliability
- Ease of Operation
- Useful to detect harmful gases

Applications:

Malls

Apartments

Conclusion

Hence by this project we can design system for car parking by using two IR Transmitter and receiver pairs. By using this project in real time application we can reduce the human effort to the maximum extent. Total space in which the maximum number of cars can be accommodated can be displayed on 16X2 LCD.

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