An Intelligent Car Parking Management System

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Abstract- **A Smart routing schedule that pleasure uses a PGI provision is best which offers less fulfillment or ride instances because of users are also reduced. A-star path-finding algorithm is been implemented according to fixity multiple customers concurrently, while acceptance within tab some another's nearest strip in accordance with the parking area of their respective routes . In it approach the user avoids upstairs staying the identical parking house via reception exclusive selection on the respective shortest route. A choice technique is used in imitation of identify yet provide the most efficient solution because all users at any precise time. This strategy is additionally economically auspicious yet efficient. Clever parking provision affords education after the drivers according to discover accessible parking areas in imitation of avoid growing parking issue. Traffic authorities into many metropolitan cities bear initiated parking Guidance and Information (PGI) structures supplying drivers along up-to-date facts concerning the on hand parking areas yet direct the drivers accordingly. The statistics is furnished according to the leader over the internet. The structures supply the vicinity regarding the on hand vehicle control spaces based over the driver's present day location within intended location then his ultimate destination. Global Positioning System (GPS) is chronic after address the driver's dwelling in imitation of the parking destination, afterwards the parking space is reserved stability this outcomes within visitors fulfillment so a couple of customers are Wight directed toward the identical parking area at the equal time.**

Keywords – GPS, PGI, A-star path finding, RTR, STR

I. INTRODUCTION

It will first give a brief introduction of the main functional parts of the intelligent car parking management system, and then describe the event-driven processing and interactions of these modules. Objective of this project is saving time using hierarchical approach in A-star path finding algorithm, in other words, presenting time efficient placement approach for smart parking systems. The parking problem in big cities, especially the mega-cities, has become one of the key causes of the city traffic congestion, driver frustration and air pollution. In the future, it is expected to have an increase in the demand for the intelligent parking service because of the rapid growth in world population as well as the automotive industries. An effective solution to this service can be provided by many new technologies. An available parking spot. Smart parking solutions can help to accomplish parking problems. It study concentrates on placement algorithms which are used in smart parking applications. Another important factor to take into account is the cases where the location of alternative parking spots are evaluated, for example, a case where the distance to the free spot is not the best one available. As discussed in an effective parking placement strategy makes the better use of parking spot resources possible. It present a hierarchical placement approach based on nearest location. First, the nearest parking area will be found. After finding nearest car parking can directly search only nearest car park for an empty spot. By doing this, indirectly skip the car parks which are not close enough to driver. This hierarchical method makes the search easier, faster and more efficient. Time is the most valuable metric in our project. By using hierarchy in placement algorithm, it consume less time while finding nearest empty spot in car park. Saving time while parking a car means that save energy, fuel, evens a summary, main objective of this project is saving time using A-star path finding algorithm, in other words, presenting time efficient placement approach for smart parking system.

II. PROPOSED ALGORITHM

2.1 A-STAR ALGORITHM –

Idea: Avoid expanding paths that are already expensive.
Evaluation function $f(n) = g(n) + h(n)$.
Where,

$g(n)$ = cost so far to reach n
$h(n)$= estimated cost from n to goal
$f(n)$ = estimated total cost of path through n to goal

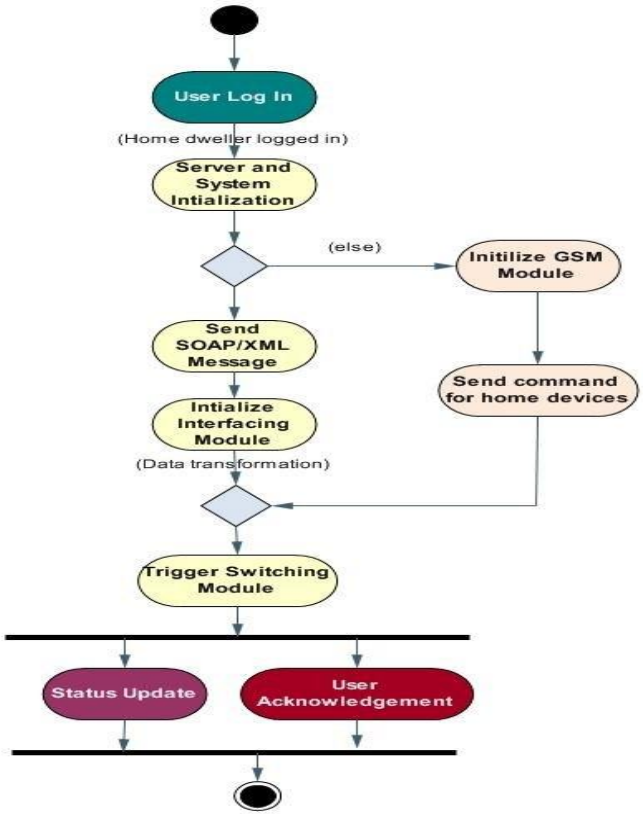
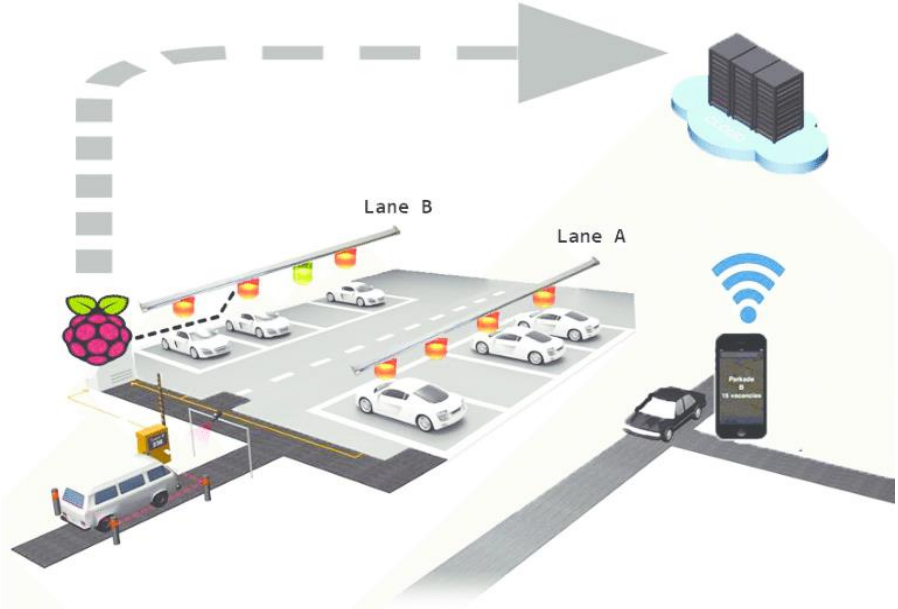


Figure 1. Activity Diagram

2.2. Architectural Design –

An architecture diagram is a graphical representation of a set of concepts, that are part of architecture, including their principles, elements and components Architecture diagram can help system designers and developers visualize the high-level, overall structure of their system or application, in order to ensure the system meets their users' needs.

The available slots in a parking system are visible to customers on application and it will be updated as per the usage of customers through booking module.



2.2. Data Flow Diagram –

Drivers searching for parking are estimated to be responsible traffic congestion in cities. Historically, cities, businesses, and property developers have tried to match parking supply to growing demand for parking spaces. It has become clear, though, that simply creating more parking spaces is not sufficient to address the problem of congestion. This order introduces a early algorithm that will increase the effectively about the cutting-edge cloud-based smart-parking dictation about the internet-of-Things technology. This cost wish remain back according to offer a answer of discovering an handy parking space over a

pray via the user then a solution concerning suggesting a new car park salvo the present day automobile garden is full. A norm A- star path-finding algorithm is been applied to fixity multiple customers concurrently, while arrival between calculation one another's nearest strip to the parking location within their respective routes. Global Positioning system (GPS) is used in conformity with location the driver's dwelling to the parking destination, afterwards the parking area is reserved durability This results within traffic prime namely a couple of customers are life directed toward the identical parking area at the equal time.

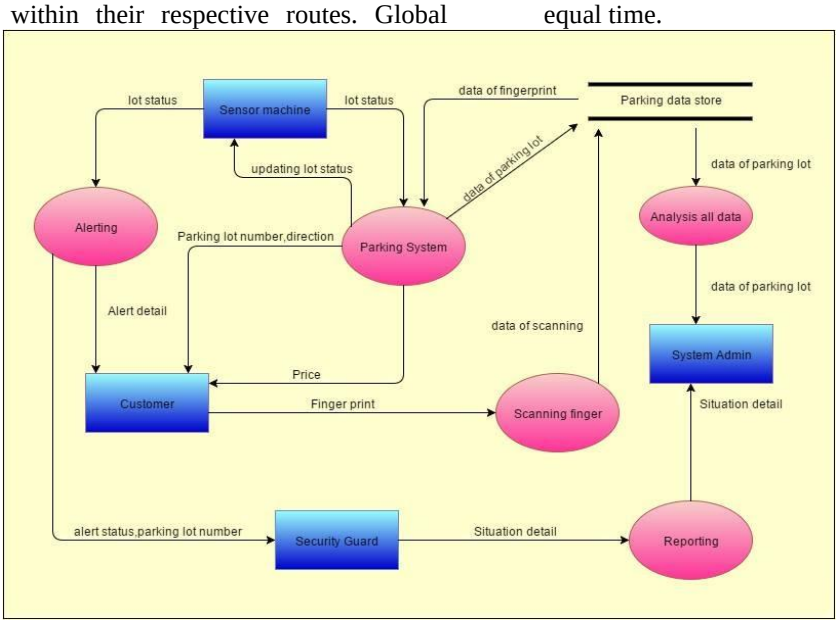
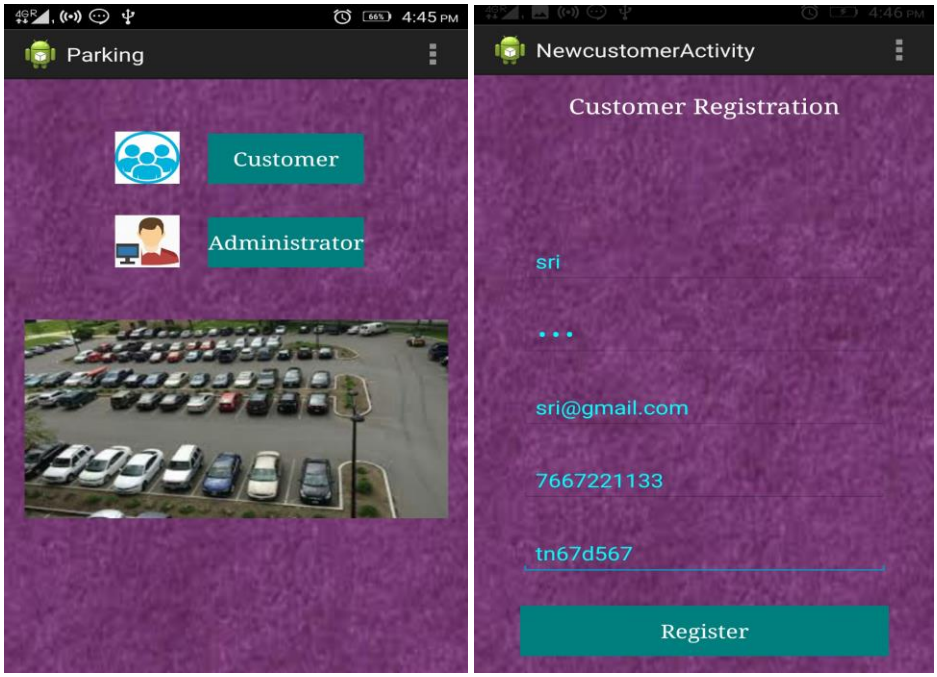


Figure3: Dataflow Diagram

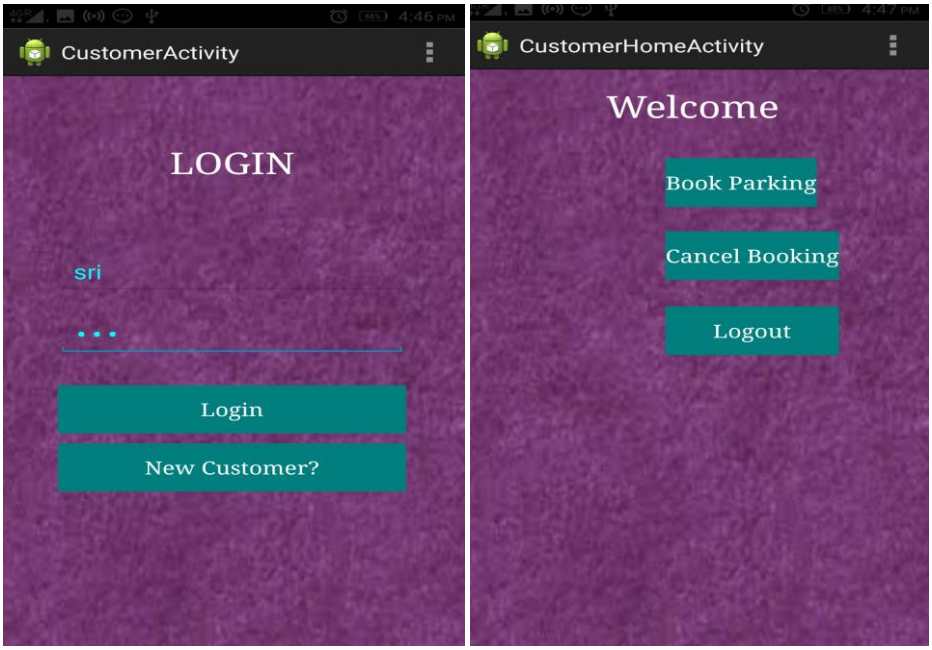
II. EXPERIMENT AND RESULT

The home page contains two things as customer and administrator. The customer lo

HOME PAGE: CUSTOMER REGISTRATION:



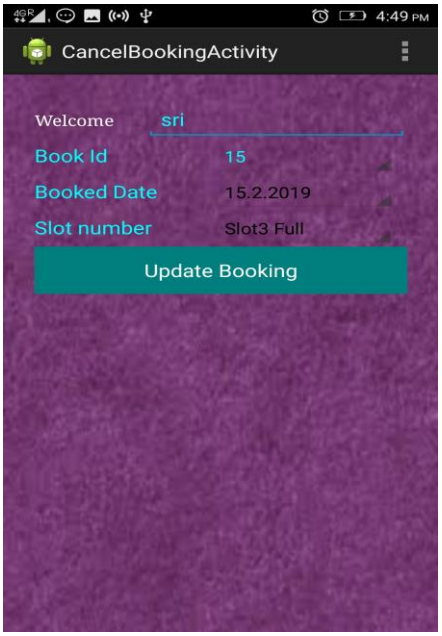
(a) (b)



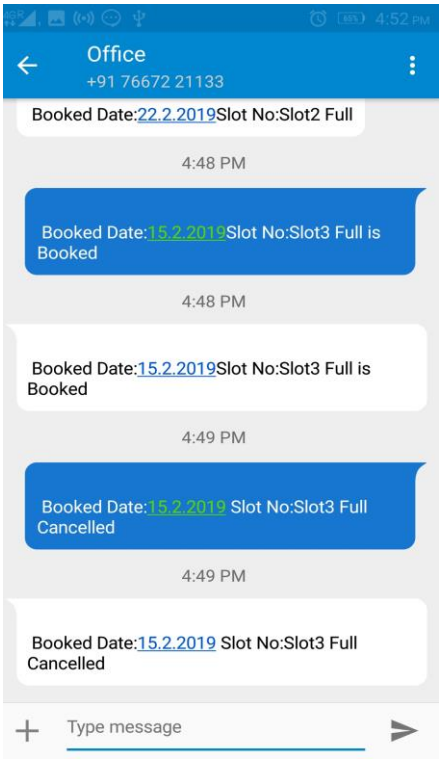
(c) (d)

Figure 4. (a) Home page (bCustomer Registration (c) Customer Login (d) Customer Home page

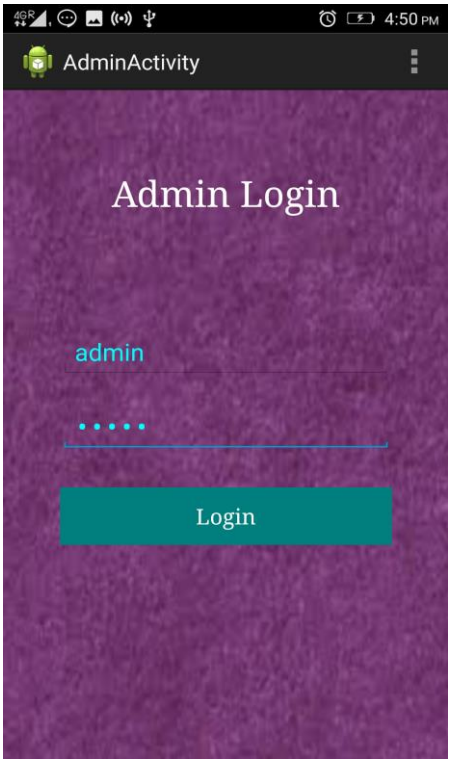
(a)



(b)



(c)



(d)

Figure5: (a)Book Parking (b)Cancel booking (c) Sending Notification (d) Admin login

(a)

(b)

(c)

Figure 6. (a) Admin Main Activity (b) View Customers(c) View Booking

IV.CONCLUSION

Smart Parking management system using wireless sensor networks is based on the requirement analysis for existing car parking management systems, it is designed the system architecture and its subsystem level components as part of. It was implemented a full-fledged prototype model as a proof of concept to realize and understand the real time scenarios in parking management systems. Through prototype system the demonstrated that the proposed architecture can effectively satisfy the requirements of a car park management system and it is believe that wireless sensor networks can be a promising technology to solve future parking hassles.

FUTURE ENHANCEMENT:

Smart car parking is a energy and time android deficient approach which can be used in car parking android applications. Introduced hierarchical approach is simulated android and compared with non-hierarchical one. Same search android algorithms are used with hierarchical and without hierarchical android approaches. The results of simulation are discussed and android showed that hierarchical approach makes search process more android energy and time efficient. In addition, by considering energy android and time efficiency with IoT concept, it leads us have more android convenient, comfortable also more environment friendly android intelligent systems. As future work, prototype of proposed android approach can be created. Instead of simulation results, real life android experience and results can be investigated in terms of android efficiency in time and energy. By using prototype of approach, android COandroid2 emission values, fuel consumption, and other metrics can android be considered and discussed.

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