

SEALYC: An IoT Based Solution for Smart Community

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ABSTRACT

The exponential growth and consequent development in world population and increasing number of cities, causing different challenges & creating new opportunities. Due to increase in trend of Internet of Things (IoT), scientists are keep working & exploring new ideas for connecting lot of things to the internet via different IoT connectivity mechanisms. The Prime principle is to connect maximum assets along with their associated services of any city together, mainly due to a reason that cities are key element for innovation and this evolution process is hovering the thought of IoT. To further extend the idea of IoT, this development introduces the concept of smart city, which is actually a massive modernization of old cities. The cities whose important processes i.e. traffic management, parking processes, security operations & etc. are controlled from a central Operations department, based on the feedback received from different sensors installed on key locations are termed as Smart cities, which basically implements the core idea of IoT to surge effectiveness and via an effortless manner of operations.

Our study highlights two major modules named Secure Entrance & Locate Your Car. The primary concern of each module is to assimilate information and communication technology (ICT) and internet of thing (IoT) to manage the assets. The application is established to add a value in a life of mankind and offer vigorous atmosphere.

Keywords: Internet of things; Secure entrance; Smart city.

INTRODUCTION

The impression of smart city is becoming very common among intellectuals & experts in this digital era. Lot of new urban areas in existing cities are now being developed while using Information and Communication Technologies (ICTs) comprising mobile devices, cloud computing and the IoT devices [1]. Smart cities are designed to provide intelligent responses against various type of situations, including routine living-hood of common people, environmental safety, security and city services like industrial & commercial activities [2]. The interactive IoT services along with big data analytics, are empowering smart city initiatives all across the globe. These amazing smart services are revolutionized cities by changing infrastructure and transportation operations, impacting the traffic bottlenecks, managing waste management smartly & ultimately improving the living standards [3]. Safekeeping has always been a major concern for every citizen, whether individually or collectively, security is a primary concern in all domains. So, it is mandatory to have appropriate analyzing measures at entry points of certain locations. Now a days, quality of a life in any city is having a vital factor of security & protection. So we can draw a conclusion that a Smart City must be a Safe City as well [4].

Now a days, lot of manual processes are in place for security scrutinizing processes, which causes number of overheads to administer and it causes delays and also creates hindrance with security checking at entrance. Similarly, in big parking spaces of shopping malls or building plazas, sometimes it becomes tough for the people to find their parked vehicle. Sensor enabled smart cars and city infrastructures can lessen the deadlocks in parking and give better services to the citizens [5].

Our proposed system is covering the public services for Smart City in which the Secure entrance and Locate Your Car System is covered.

METHODOLOGY

We proposed a smart system for smart cities that will replace existing system. The Smart city modules which are discussed in this are

1. Secure Entrance
2. Locate Your Car

Module 1. Secure Entrance (Integrated RFID and NFC).

To increase the quality of resident's security this smart system is made. In this module i.e. (Secure Entrance) Whenever user is entering or leaving the society he has to show his NFC based smart card to NFC reader and the vehicle he is using have RFID based smart sticker (i.e. placed on the front of the vehicle) will be scanned through the RFID scanner (i.e. placed at the entrance). If the information of NFC smart card and RFID smart sticker will be matched and verified, then user will be allowed to enter the society. This is how the security team can observe and control criminal activities in the society and provide secure environment to the people of this society. The same process is implemented at the other end of the society, whenever person will leave the society he has to follow this procedure to make sure that he is bringing his smart card with him. This will help him to follow the process while entering back to the society. For the guest of people living in this smart society another process is implemented in which guest has to be submit his National Identity Card and would be provided with the guest smart card to enter into the society and when guest will leave the society he has to return the smart card in order to collect his National Identity Card.

Module 2. Locate Your Car (Through Indoor Positioning).

In the second module we propose a system to solve the problem that the user sometimes forgets the place where he parked the car. So here we provide the solution that we provide another feature in our mobile application to track the vehicle of user through indoor positioning. In which user can enter his vehicle ID which is programmed in RFID sticker into the mobile application and sign in then the application will guide the whole route to the vehicle from user current position. This is how the user can navigate his vehicle where he parked

CONCLUSION

Due to a rapid growth in population of urban areas, every society's administration is now facing a huge challenge of traffic congestions, fool proof & efficient entries arrangement for residents & visitors in the city. The administration should also arrange to provide them adequate spaces for parking, which must not create any congestion. In this article we have proposed two system for smart community i.e. Secure entrance and Locate your car. SEALYC systems provides a cost effective and environmentally friendly solutions to the societies. NFC based smart card and RFID based smart stickers together provides safe and secure solution to the societies.

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