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An IOT Based Emergency Evacuation System

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ABSTRACT -With technological advancements, internet is evolving and so is the development of internet of things. Buildings are getting smarter and this trend is gaining momentum. Wireless sensor networks play a key role in this concept. This idea deals with one of the widely used applications of wireless sensor networks i.e. in the field of navigation. When an emergency occurs, wireless sensors detect the danger and direct the evacuees to areas far from it via cyber physical interaction. Emergency navigation is essential to evacuate users trapped in danger to nearby exit. Our focus is not only to guide users providing short path but also safe path. This helps in avoiding congestion as well as leads to the usage of other sub-optimal paths which are often left unused thereby improving the survival rate of evacuees.

KEYWORDS: internet, Wireless Sensor, Emergency

I. INTRODUCTION

We propose Smart Escape, a real-time, dynamic, intelligent and user-specific evacuation system with a mobile interface for emergency cases such as fire. Unlike past work, we explore dynamically changing conditions and calculate a personal route for an evacuee by considering his/her individual features. Smart Escape, which is fast, low-cost, low resource-consuming and mobile supported, collects various environmental sensory data and takes evacuees' individual features into account, uses an artificial neural network (ANN) to calculate personal usage risk of each link in the building, eliminates the risky ones, and calculates an optimum escape route under existing circumstances. Then, our system guides the evacuee to the exit through the calculated route with vocal and visual instructions on the smartphone.

II. PROBLEM DEFINITION

There is the route coordination problem in emergency expulsion of large smart buildings. The building expulsion time is crucial in saving lives in emergency situations caused by immediate natural or man-made threats and disasters. Conventional approaches to expulsion route coordination are fixed and predefined.

III. METHODOLOGY

Smart systems that are deployed in buildings increase user comfort and management of building resources becomes more efficient. These systems are referred to as building automation systems (BAS). Automated management of functions like heating, ventilation, lighting, security, and energy management is provided with BAS by using hardware and software based techniques.

Emergency Evacuation Service model is proposed as part of the BaaS project and details of this model are explained. At emergency situations, especially in densely populated buildings, evacuation of people to safe places is a very challenging task because of complexity of the building floor plans. An emergency service is targeted in this study in order to solve this issue

IV. MODULE DESCRIPTION

User login: For login to the system, user will enter the Username and password, if entered details are correct then the system will redirect him to home page otherwise it will show an error message.

Registration: The user will register to the system with normal information. At the time of registration, password will be auto generated and it will be provided to user's mail.

Prediction system: It will predict the path based on the indoor positioning system. It will help if any of the path is block.

Hardware : In this part a sensor will check if any of the threshold level is crossed. If crossed buzzer will start.

V. LITERATURE SURVEY

Title : Mobile Fire Evacuation System for Large Public Buildings Based on Artificial Intelligence and IoT

In this, the artificial intelligence technology is used to construct an efficient and intelligent dynamic evacuation path solving model, and an intelligent mobile terminal fire evacuation system was built for large public buildings based on artificial intelligence technology.

Title : An IoT Based Intelligent Fire Evacuation System

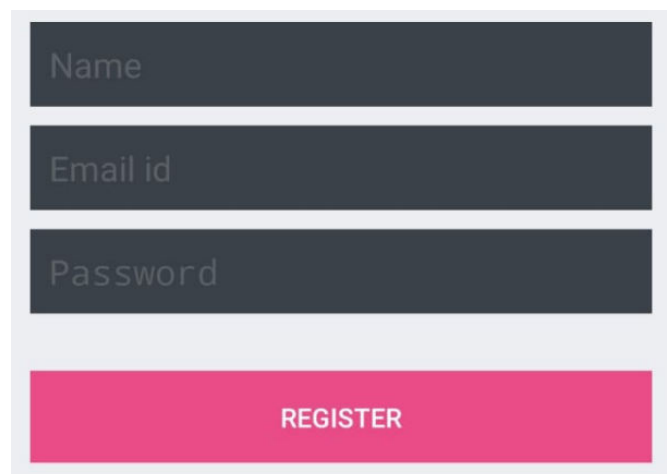
In this paper, an IoT based intelligent fire evacuation system is developed that effectively guide people along an evacuation path in case of fire accidents. A* search algorithm has been used to

control the central module of the proposed model. This help people navigate out of danger by guiding through the shortest safe path possible.

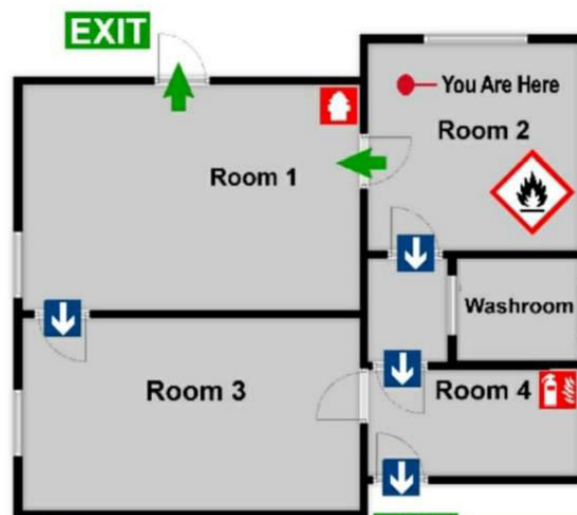
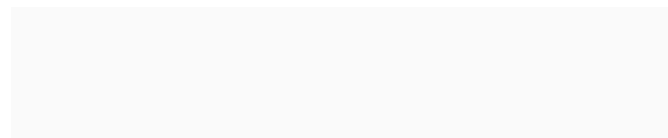
Title: A RFID-Based Hybrid Building Fire Evacuation System on Mobile Phone

In this work, a hybrid building fire evacuation system (HBFES) on a mobile phone using Radio Frequency Identification (RFID) techniques is designed. Location Based Service (LBS) and several existing computer or mobile phone applications used on the system to rapidly calculate the reliable evacuation routes when building fire takes place.

VI. RESULT



The image shows a registration form with three input fields: 'Name', 'Email id', and 'Password'. Below these fields is a pink button labeled 'REGISTER'.



VII. CONCLUSION

The users equipped with mobile phones or PDA's interact with the sensors through Wi-Fi. GPS is inadequate for indoor location positioning. Wi-Fi is a technique used for location tracking with wireless access points(AP's).



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