

# Implementation of Smart Letter Box System

Pragati Girme<sup>1</sup>, Priyanka Bansode<sup>2</sup>, Harshal Mohite<sup>3</sup>, Anirudha Pande<sup>4</sup>

<sup>1</sup> Student, Computer Department, JSCOE, Maharashtra, India

<sup>2</sup> Student, Computer Department, JSCOE, Maharashtra, India

<sup>3</sup> Student, Computer Department, JSCOE, Maharashtra, India

<sup>4</sup> Student, Computer Department, JSCOE, Maharashtra, India

Prof: Anjali Devi Pujari, Computer Department, JSCOE, Maharashtra, India

## ABSTRACT

Today, Indian government agenda is to create smart cities. While promoting this we have implemented "Smart Letter Box System" which contains smart letter box which, while receiving a letter sends the notification to the user that the letter is received in the letter box with the count of letters in letter box with its address, date and time. In old days people used to go and check the letter box frequently in a day, which needs human efforts to go and check the letter box frequently and the time needed to go. So this system is very helpful and useful to the user as it sends the notification to the user that letter is received in letter box. This reduces human efforts and time. And work is done fastly.

**Keyword :** - Smart Letter Box, Sensor, Hardware Kit, Android, MySQL

## 1. Introduction:

Smart letter box is the new and the latest technology that have been involved from recent times. The use of letter box are largely find in official use like government posts, many organizations etc to post the letter. We have implemented this system by interaction of Hardware kit and Android Application. In this smart letter box system it involves five parties: the admin who has the highest authority. The area manager, pick-upper, operator and user. The area manager is given different areas. Pick-upper and operator are under area manager. Pick-upper is suppose to pick up the letters from the letter box and operator installs the letter box on the hardware kit. The hardware kit include IR receiver and transmitter. IR transmitter transmit the rays. When the rays fall on to the object then it gets reflected to IR receiver, it results that the object is detected. Then the notification is send to user on android application. The notification is sent through internet connection. The android application receives the notification from the kit. Battery backup is provided to the kit so the power failure problem will not occur. Here MySQL database is used to store the data. Data in sense it stores the count of the letters that are present in letter box and the address from where the letter has been received. The existing system reduces the human efforts as well as cost. This system is the best approach in IoT.

## 2. Related Work:

### 2.1 Implementation of Android Application:

Using this Android application it can notify user that the letter has been received. User can register the device update user information etc. The home page of application is mainly comprised of eight options :-User registration, Device registration, Device allocation, Update Userinfo, User status, Letter Box summary, Allocation, Logout.

#### 1.Login:



Fig.A(Login)

User should enter his/her user name and password to login to the android application.

#### 2.User Registration:

User registration include Name of user, address, email, contact no, birth date and password.



Fig 1(User Registration).

3. Device Registration:


Device registration include IMEI number, mobile number, network operator, purchase date, manufacture date, expiry date and model number .



The screenshot shows a mobile application interface titled "LetterBox" with a "Device Registration" form. The form contains the following fields: "IMEI Number", "Mobile Number", "Network Operator", "Purchase Date", "Manufacture Date", "Expiry Date", and "Model Name". At the bottom of the form, there are two buttons: "Next" and "Clear".

Fig:2(a)

The second form include model number, warranty in years, country, state, district, taluka, city and pincode of the device



The screenshot shows a mobile application interface titled "LetterBox" with a "Device Registration" form. The form contains the following fields: "Model Name", "Warranty (in years)", "Select Country", "Select State", "Select District", "Select Taluka", "City", and "Pincode". At the bottom of the form, there are two buttons: "Register" and "Clear".

Fig:2(b)

#### 4. Device Allocation:

It includes allocation of devices in different areas. It includes users country and device located in the country.



Fig:3.

#### 5. Update information:

If there are changes then the information is updated. It includes bName, address, email, contact, dob, and password.



Fig:4(Update information)

#### 6. User Status:

In user status it includes status updated of user i.e. its information like id, password, name, address, email, contact etc.

#### 7. Letter Box Summary:

Letter Box Summary includes the count of letters and address of letters.

#### 8. Allocation:

Allocation shows the allocation of letters at different addresses. It shows the location of the letter box using Google maps.

## 2.2 Hardware Kit:

Hardware kit is nothing but the smart letter box which contains the arduino kit installed in it.It contains the following elements:

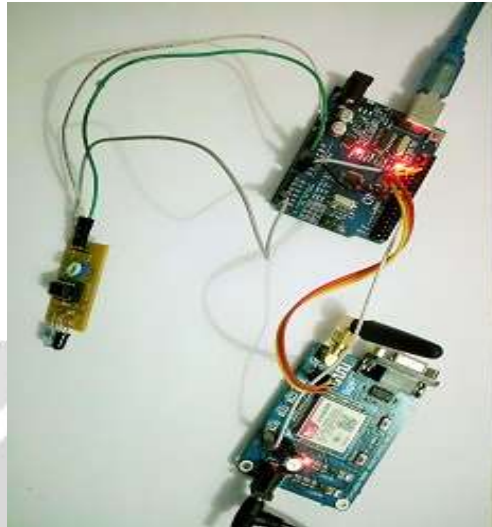


Fig:Kit configuration

1. Sensing circuit: Sensing circuit is a comparator which is build using Im 358 ic. Output of this comparator is directly connected to the digital pin number 3. In this circuit IR transmitter and IR receiver are placed in letter box in the same direction when any obstacle or inserted into the letter box comparator detects the obstacle then it send signal to Arduino.
2. Controller circuit:- After getting signal from comparator, Arduino sends command to GSM module for sending a notification message to a specified number.
3. GSM Module:- Rx and Tx pins of GSM are directly connected with Tx and Rx pins of Arduino respectively. And ground pins of both modules should be connected to each other.
4. Real time clock:- This RTC clock is used here for running the time and when delivery , if letter occurred, letter delivery time of RTC is saved in EEPROM of Arduino.

work Introduction related your research work Introduction related your research work Introduction related your research work Introduction related your research work Introduction related your research work Introduction related your research work Introduction related your research.

## 2.3SQLite Database:

SQLite is a software library which implements a self-contained, is configuration less, server less, and transactional SQL database engine. SQLite is the most widely used SQL database engine in the world. The source code of SQLite is in the public domain.

Nowdays, the technology and science is in progress day by day new technologies are invented and new things are created by human. In this system we have studied a smart letter box system that notify the user that letter is received in the letter box. In our daily life it is not possible to us to check the letter box. we introduce this system that the system notifies the user by sending message that letter is arrived. In this paper we conclude that science is non stoppable, new things arrive and growth of smart system is happening. Hence developing the relationships with the client and eventually gaining the goal of Office.

#### 4. CONCLUSIONS:

Nowdays, the technology and science is in progress day by day new technologies are invented and new things are created by human. In this system we have studied a smart letter box system that notify the user that letter is received in the letter box. In our daily life it is not possible to us to check the letter box. we introduce this system that the system notifies the user by sending message that letter is arrived. In this paper we conclude that science is non stoppable, new things arrive and growth of smart system is happening. Hence developing the relationships with the client and eventually gaining the goal of Office.

#### 5. ACKNOWLEDGEMENT :




We are thankful to our project guide Prof. Anjalidevi Pujari, Associate Professor Computer Department for her invaluable guidance and cooperation that she gave us throughout our Project. We specially thank our project coordinator Prof. A. V. Devare for inspiring us and for providing us all the lab facilities. We would also like to express our appreciation and thanks to HOD Prof. H. A. Hingoliwala and Principal Dr. M. G. Jadhav and all our friends who have assisted us throughout our hard work.

We are also thankful to the **LISSOM TECHNOLOGIES** who sponsored us this project. We liked the idea of this project. We are thankful for their valuable guidance and support.

#### 6. REFERENCES:

- [1]. Sachal Mufti and Muhammad Naveed Alam from Pakistan “Real-time path planning and obstacle avoidance of a self-Navigated Autonomous Biped Robot using Rug-Bat Sonar sensor and Digital Image Processing modular”. IEEE Trans. July .2012.
- [2]. Berta Buttarazzi and Gianluca Troiani, Walter Liguori ,Michela Basili ,Rasia “Smart Sensor Box system:a real implementation of devices network for Structural Health Monitoring ” .IEEE Nov ,2015
- [3]. P.A AMBRESH,M.ASHWINI,TRICKSON WILSON RODRIGUES And VIKESH “Design & Development of Electronic Letter Box Using LDR” NCRIET-2015 .
- [4]. NIRUPAMA BULUSU,JOHN HEIDEMANN AND DEBORAH ESTRIN implemented “GPS-LESS Low-Cost Outdoor Localization for Very Small Devices”.IEEE 2000.
- [5]. Parmjit Kaur and Sumit Sharma ,India .“Google Android a Mobile Platform :A Review” .IEEE ,March 2014,08 .
- [6]. Sudha.G and Ganesan.R “Secure Transmission of Medical Data for Pervasive Healthcare System using Android ”,IEEE 13 Sep ,2013.

**BIOGRAPHIES :**

	<p>Pragati Jaykumar Girme JSCOE, Hadapsar Savitribai phule pune university, Pune.</p>
	<p>Priyanka Ashok Bansode JSCOE, Hadapsar Savitribai phule pune university, Pune.</p>
	<p>Harshal Anil Mohite JSCOE, Hadapsar Savitribai phule pune university, Pune.</p>





Aniruddha Santoshrao Pande  
JSCOE, Hadapsar  
Savitribai phule pune university, Pune.

