

Smart Delivery of Article

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Abstract: Visually impaired persons find difficult to lead their life independently. According to the national survey 2016, found that 79% of visually able person and 21% of visually impaired. Out of 21% of visually impaired, 10.56% of literal blinds, 3.44% of illiterate blinds and 7% of blinds with the age above 50. Visually impaired people mainly face problems while walking in a crowd, public places, climbing the stair cases and to read and write messages or e-mails. In the present scenario visually impaired have tactile sensation devices such as finger braille, manual alphabets, print on palm method and several other electronic gadgets. Even though there are some problems arise in these methods such as lack of privacy and lack of compatibility to advanced communicational and computational environment. This paper proposes an intelligent system to support the visually impaired with a low cost hand glove and navigational stick, which helps to write and read text messages and e-mails using different hand gesture as well the navigational stick helps them and assist to navigate in the public places and crowded area, obstruct detection and gives alert in case of slippery floor and climbing of staircase. Finally this proposal eliminates the lack of privacy and compatible usage of electronic gadgets, making visually impaired to be confident to lead their life independently in the society.

Index Term - Finger braille system, Hand glove, Navigational stick.

I. INTRODUCTION

At present the postal department is using barcode technology in which address and pin code has been decoded, in addition to that receivers registered phone number must be verified and decoded into the barcode. In order to verify the mobile number of receiver, a missed call will be given by IVRS to check the mobile number availability. Article will be accepted only when the valid receiver mobile number provided by sender. After successful booking receiver will get the message with tracking details. After that usual transportation will take place and the status of the article will be updated on Indian post website. When the consignment will arrive to the destination post office. An appointment will be schedule by the receiver through the IVRS system. On the scheduled date the postman will bring the article to the receiver's home and delivered to receiver. If in case the receiver is not available on the scheduled date, then again new appointment will be taken by IVRS system. And again if receiver not available on new scheduled date then last option remains at receiver is to pick the article from destination post office within next two working days. Otherwise the article will be return back to sender. If the article is consist of highly confidential documents like Passport then a biometric verification has to be done before hand over the article to the receiver. The finger print of receiver will be recorded and compare with Adhar-card server. If matched receiver found then only the article will be hand-over to the receiver.

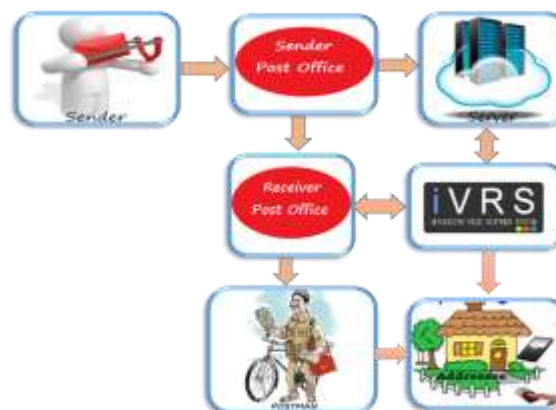
II. EXISTING SYSTEM

To track the consignment the existing technology used is the barcode in which address and pin code are decoded

in it, we get status and tracking details from the source office to destination office only. But this technology does not include the addressee availability during the delivery of the article which creates waste of time and resource loss. In this technology we don't get an acknowledge through text message or call. This problem can be solved by the use of mobiles and biometric system.

III. PROPOSED SYSTEM

Here is a solution block diagram for the combined existing as well as proposed system. In which the working and the function flow is shown very clearly.



Block diagram 1.

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As seen in block diagram the IVRS is connected with server, receiver post office and mobile phone to addressee. As per the response from receiver the instruction data get updated to server as well as post office. And on informed day the postman leaves for delivery of article. The methodology will give more clear conception of the diagram and IVRS flow.

IV. METHODOLOGY

First the articles are scanned using bar code and all the details of the article are registered into the server of post office. An immediately IVRS call will be generated to the registered number of the addressee, to check whether the addressee is available to receive the article or not. Thus the addressee receives an IVRS call to his/her registered number regarding the delivery of the article.

As the addressee receives the call, it asks for the language preferred to listen the instructions. This is needed as India is linguistic country where various languages are spoken in single place.

The IVRS provides the options of languages as we use DTMF tones input via keypad. i.e., list of most used languages of the zone.

Press1. English

Press2. Hindi

Press3. Other.

Thus the IVRS intimates the addressee about the delivery of the article after the language is chosen.

If the addressee choose any preferable date to receive then on the preferred date the same process must repeat i.e., the article must be scanned and the addressee will receive an IVRS call. This process is repeated only twice. The third time the addressee receives the message stating that he/she must collect the articles from post office within a week.

The other problem arises when the call is not connected to the addressee. We have two possible conditions, they are:

The phone is ringing and the call is not attended. This happens because Addressee might be busy and could not attend the call. Addressee might have not noticed the call as he/she has kept the phone in silent mode

Addressee might reject the call as soon as they see the toll free number. Thus a message must be delivered to the addressee suggesting to give a miss call to a number specified in the message, so that they can receive an IVRS call again regarding the delivery of the article.

If the addressee is ready to accept the article press1. And this

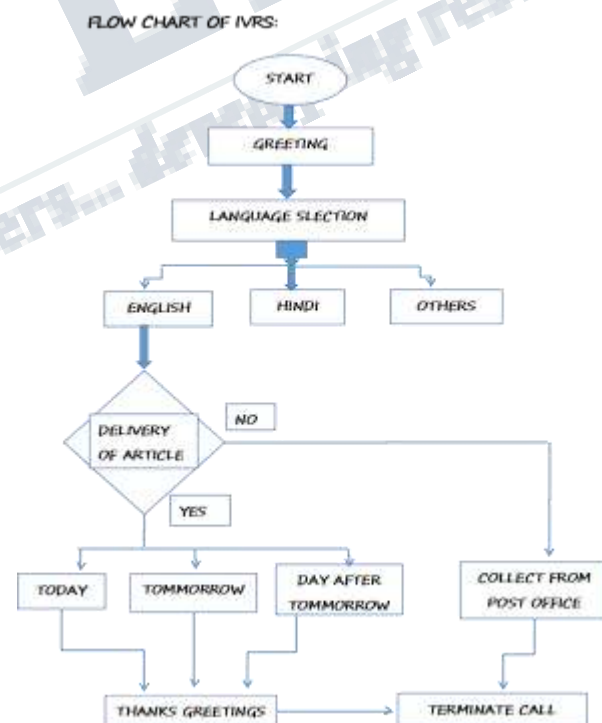
response will be updated to server and server updates to post office so that article will be out for delivery. If the addressee is not available then he/she can choose the option to pick the article from post office itself within next five working days. If he/she fails to do so then the article will be sent back to sender.

In case of phone is switched of or out of coverage area then as soon as the addressee switch on the phone or comes into the network area a message will be sent stating about article and for delivery option give miss call to the toll free number. This is to generate IVRS call again to addressee.

Thus when the article is received by the addressee, post man should carry a biometric system so that he can take the acknowledgement from the addressee which will be updated to the server and the message is sent to the addressee as well as to the sender that articles is delivered to the addressee on date: XX/XX/XXXX by the person name: XYZ.

V. FLOW DIAGRAM

As we discussed about the IVRS call in detail this will be flow for it once receiver pick up the call.



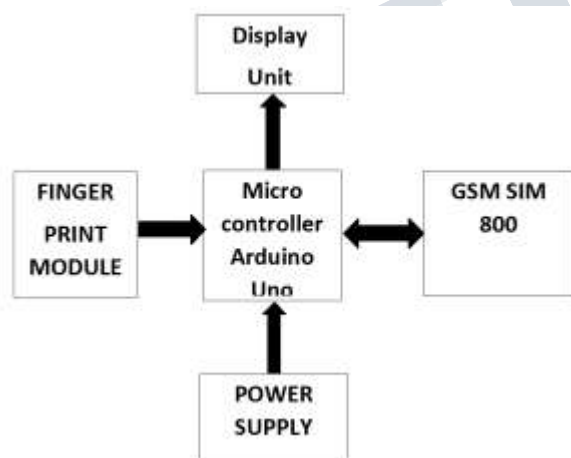
Flow diagram of IVRS.

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As shown in flow first it will greet the addressee then will give the language option. Once language is chosen then it will ask for the delivery of article either yes or no. if receiver says yes then again it will give three options of days for delivery as today, tomorrow, and next day after tomorrow (i.e. next working day). From this response will be taken and the call will be terminated again with greeting. If receiver gives no then it will notify that please collect your article from post office within next five working days.

VI. AUTHENTICATION UNIT

At the very receiver end that is time of delivery the postman will be with this unit. He/she will take the biometrics of receiver and the fingerprints will be verified with server data. If found to be the same person then only the article will be delivered otherwise the record of the person authentication will be taken for the future queries by receiver in case missing the article. The block diagram of authentication unit is shown below:



Block diagram 2.

The authentication unit consist of micro controller Arduino Uno, Fingerprint module, GSM SIM 800, Display unit, Power Supply. The system will be with ON OFF switch. To take fingerprint the postman will switch on the system and take the fingerprint. The print capture of person will be uploaded with GSM to check with data and verification. If match found then only postman will deliver the article to receiver. Otherwise in case of confidential document like passport or adhaar card will not be delivered. Other documents

like register post, speed post, parcel can be given but the authentication of the receiver will be taken. In case absence of receiver any relative or family member should give their fingerprint authentication to avoid the missing of article. It will be kind of responsibility if other person is taking the article.

VII. ADVANTAGES

- Security of article increases.
- Digitalized delivery process.
- Manual work get reduced.
- Less cost
- IVRS technology saves time and reduces the efforts.

VIII. DISADVANTAGES

- Complexity and integration of system get increase with small extend.
- Article cannot be delivered to family member or relative.

IX. CONCLUSION

With the help of this system which can be integrated in the existing system of INDIAN POST we can reduce the efforts and save the time. Also we can securely delivered the highly confidential documents to correct person. Also we can achieve interest of smart cities.

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