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Call Management Application for Android Mobile Phones

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Abstract-In day to day life everyone uses mobile phones for sharing important information and emergency work with another person. So frequency of calling is increases and sometimes get headache when continuously talking with family or friends. Call Management Application provides availability of call type and manual message function on caller side. Also availability of emergency contact on lock screen and detailed call logs. When caller has emergency work with receiver person and in case, receiver phone on silent mode then automatically default ringtone will be set at receiver side to get alert of emergency work. To reduce mobile interruption through effective management of incoming phone calls, to make real time decisions to handle important calls and improve users satisfaction, the proposed system provides different features like get alert of important calls even if receiver's mobile is on silent mode, make list of emergency number on lock screen etc.

Keywords: Android operating system, Mobile Interruption, Important calls management, emergency contact lists, Text message communication, Call Type, Silent Mode

I. INTRODUCTION

In day to day life everyone uses mobile phones to share important information and emergency work with another person. So frequency of calling is increases and sometimes get headache when continuously talking with family or friends. Sometimes we miss the call when emergency work. So solution on this problem is "Call Management Application" which provides availability of call type and manual message function on caller side. Also availability of emergency contact on lock screen and detailed call logs. when one person calling to another person then firstly choose call type which are important, general etc. and type manual message as reason of call so that receiver can get easily that why caller is calling? Depending on call type whether receiver will receive call or not. When caller has emergency work with receiver person and in case, receiver phone on silent mode then automatically default ringtone will be set at receiver side to get alert of emergency work if caller chooses call type as "Important". If receiver is not able to receive important call then, for missed important calls detailed call logs will be provided in which reason of call also available, which reducesreceiver's work of call back. To reduce mobile interruption through effective management of incoming phone calls, to make real time decisions to handle important calls and improves user satisfaction in proposed system which provides different functionalities like get alert of important call even if receivers mobile is on silent mode, make list of emergency number on lock screen. So using Call Management Application, caller side and receiver side users can conveniently communicate with each other, no need to call again and again for only one reason. Mostly useful at a time of emergency work.

II. LITEARTURE SURVEY

A lot of work has been done for call management. Different methods used by the researcher to detect an important calls using smartphones andmobile applications.

A. Using Android[3]

Android is an open source software stack that includes the operating system, middleware, and key applications along with a set of API libraries for writing mobile applications thatcan shape the look, feel, and function of mobile handsets.

B. Using Missing Important Phone Calls[1]

Existing mobile call management systems make mobile phones vibrate or remains silent in an effort to reduce acoustic disturbance, or setup reminders to help users catch up declined calls later. However, they have some major limitations one of the limitation is that current approaches often only consider very limited user context in making a mobile call management decision, which is very insufficient and can cause significant errors that leads to either missing important phone calls or failure of recognizing by disruptive incoming calls.

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C. Using Automatically Send text Message[1]

Mobile call management systems aims to automatically infer a caller's current status and availability to answer a phone call, and then take an appropriate action on users behalf. When phone call comes in, such a system will either notify the caller by ringing sound or vibration, if he/she is available or should take his call or not notify the caller but instead automatically send a text message to the caller as replies to indicate that the caller is not available and may return his/her call later, if the caller is currently not available and the caller is not on a list of important people.

III. PROPOSED SYSTEM

In day to day life everyone uses mobile phones to sharing important information and emergency work with another person. So frequency of calling is increases and sometimes get headache when continuously talking with family or friends. Sometimes we miss the call when emergency work. To overcome this problem, proposed system provides availability of call type andmanual message function on caller side.Also emergency contact on lock screen and detailed call logs.Figure 1 shows the block diagram of the proposed system.

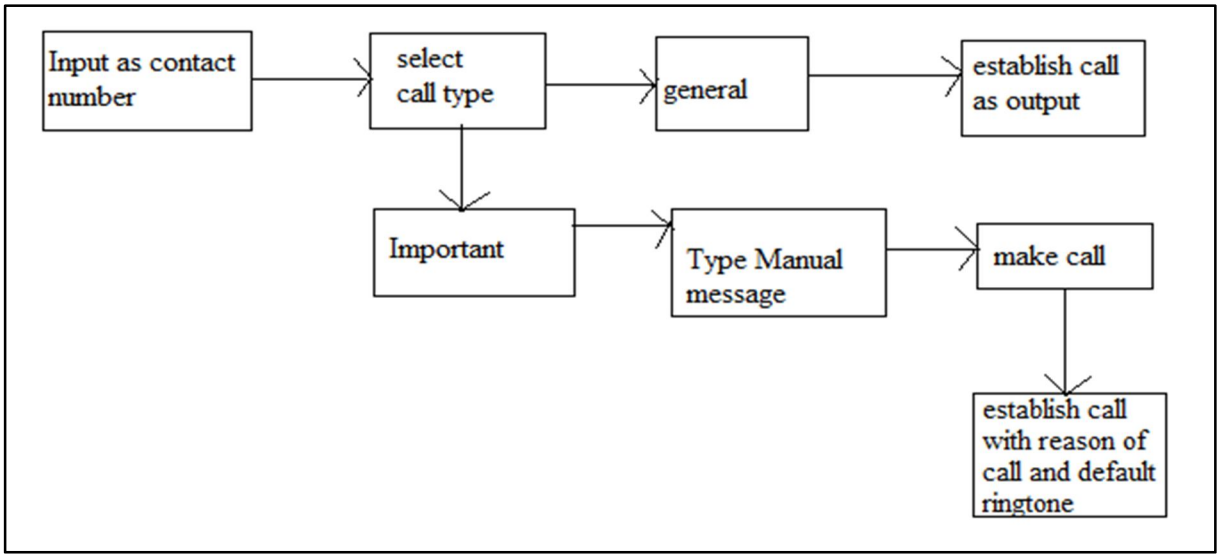

Figure 1: Block Diagram

1) *Call Type selection:* At caller side user can select call type. There will be two call type
a) General
b) Important
c) user select general call type it works like normal calling system.If caller select important call type then it helps receiver side user to detect the important call.
2) *Manual Message:* After selecting call type as 'important', caller can type short message as hint for receiver that is reason of call or like '"why I am calling you?". Which will be displayed on receivers screen so that without answering the call receiver can predict whether this call is important for me or not.
3) *Default Ringtone for Important Calls:* When Caller select Call type as important and establish call then, at the receiver's side mobile will detect that call type and it will give default ringtone for important calls when receiver's mobile is on silent mode.
4) *Detailed Call logs:* Even call type selected as important and it will give default ringtone but in some scenarios receiver may not be able to see incoming call or not aware at that time then there is possibility of missing important call.in that type of situation though call is missed but then also receiver can check the reason of call along with call logs.
5) *User Can Enable Or Disable The Application:* As per user requirement and easy to manage user can enable or disable the application. Because of these it avoid the overhead of blocking contacts. When it is necessary to attend all important call then user can enable the application. User can make it on or off like alarm system.
6) *List of Emergency Contacts:* Sometimes in emergency situations user need to call without unlocking mobile phone.

There will be emergency contact list available on lock screen, in which limited number of contacts should be available so that user can call directly without unlocking the mobile phone.

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A. System Flow

Figure 2 gives the detail flow of proposed system.

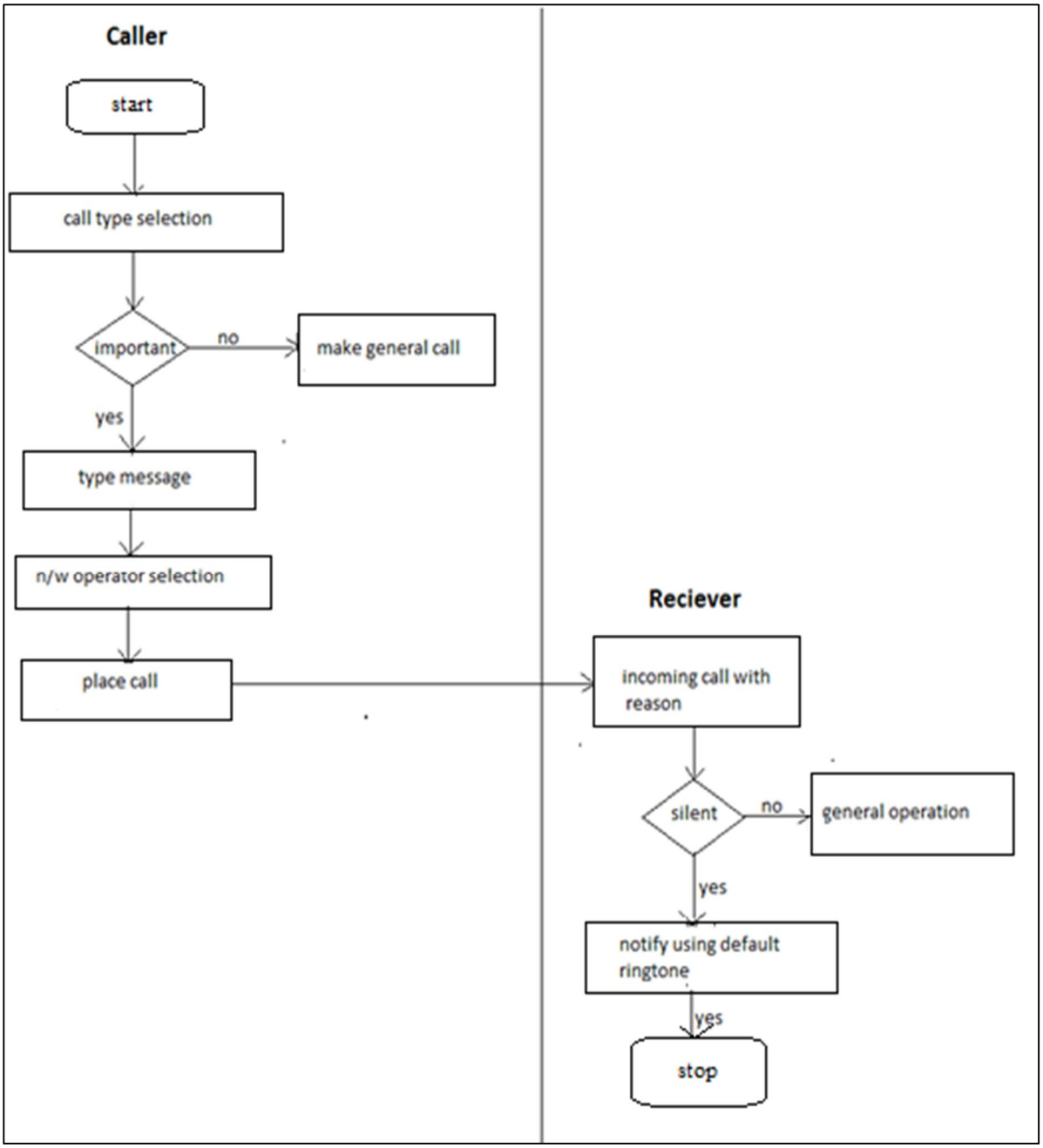

Figure 2: System Flow

B. Implementation Details

1) Sender side

a) Selection Of Call Type With Text Message: After selecting contact number, Application generates PopupMenu for call type selection, which provides options as general and important. When important call type is selected, it generates AlertDialog box in which we can enter text message that is, reason of call

b) Sending Text Message: When ACTION_CALL is called, text message is send to recipient which contains FROM_PREFIX, Senders phone number and timestamp.

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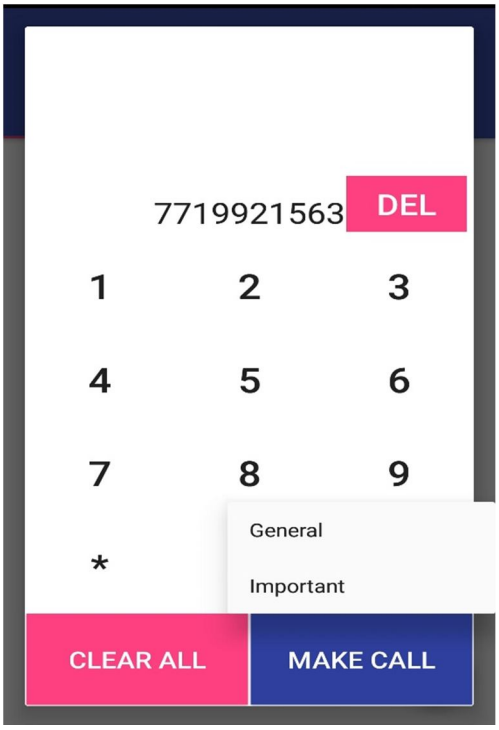

Figure 3. Selection of call type

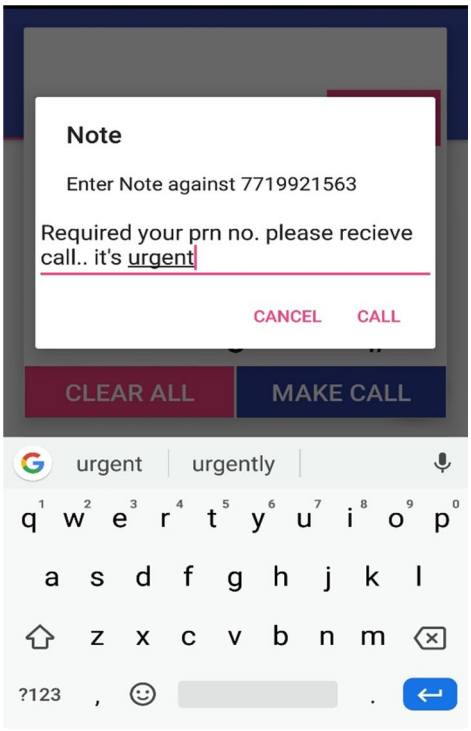

Figure 4. Write reason of call

C. *Receiver Side*

1) *Detecting and Scanning Incoming SMS[3]:* For detecting the reception of SMS we have to register a broadcast receiver in our application manifest file statically. Broadcast receiver detects the broadcasted intents. If the intent's action received by the broadcast receiver is SMS_RECEIVED, it's mean that a SMS has been received. Now Broadcast receiver will invoke the background service class of our application even if our application is not in running state. The specialty of service class is that it runs in background without interrupting other applications. It does not have any user interface. Now entire received text message will be passed to the service class where this SMS will be scanned one by one character and if any format defined by our application is matched with SMS than appropriate action will be performed.
2) *Detecting Important Call:* When incoming call is detected as important, Application fetches most recent received message contents, verify them and display the message using toast on incoming screen. Simultaneously, it will check the current Ringer Mode, if it is RINGER_MODE_SILENT or RINGER_MODE_VIBRATE then it will set it to RINGER_MODE_NORMAL.

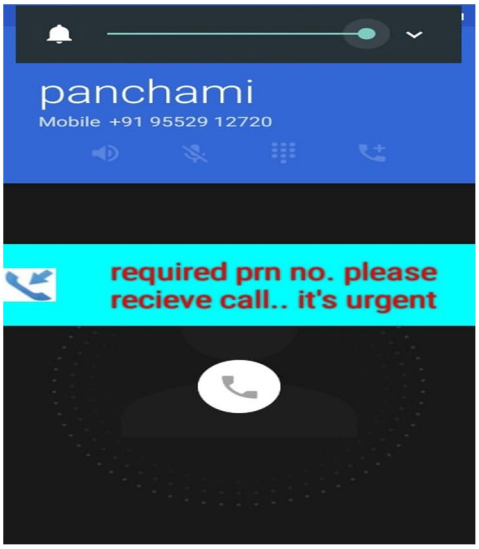

Figure 5. Incoming screen

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IV. CONCLUSION

In the proposed system, incoming and outgoing calls by using call type selection and manual message are managed. The receiver receives call based on call type selected at caller side as important or general. Call logs helps user to reduce work of call back, user can read reason of call available in logs. Receiver can determine reason of call without answering by using manual massage send by caller which display on receiving screen. Easy access of emergency contact list even if the screen is locked that will help user to make urgent call during emergency situations.

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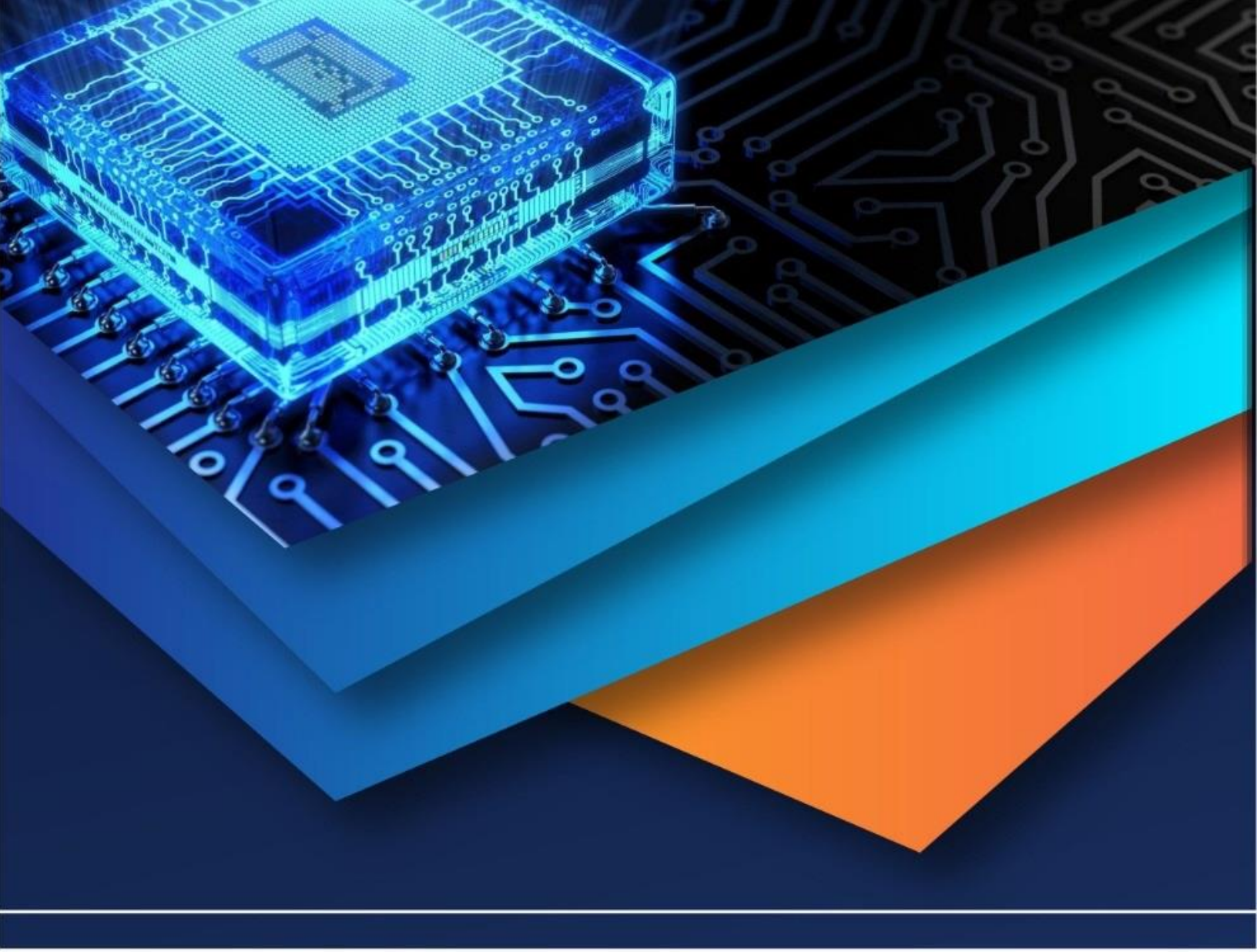

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