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(71) Applicant(s)
Motorola Inc
(Incorporated in USA - Delaware)
Corporate Offices, 1303 East Algonquin Road,
Schaumburg, Illinois 60196, United States of America

(72) Inventor(s)
Kevin John Fogarty

(74) Agent and/or Address for Service
Colin Treleven
European Intellectual Property Department, Midpoint,
Alencon Link, BASINGSTOKE, Hants, RG21 7PL,
United Kingdom

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(56) Documents Cited
GB 2268663 A GB 2251762 A
EP 0676884 A2 WO 99/16181 A1
US 5995603 A

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INT CL⁷ **H04M 1/66**
On-Line - EPODOC, JAPIO, WPI

(54) Abstract Title
Handling incoming calls on a mobile phone

(57) When a mobile phone detects an incoming call 102, the caller is identified 104 and compared 106 with a predefined list of ID's. If the caller ID is on the list then the call is accepted 108 and a live connection is established. If the caller ID is not on the list then the call receives further processing 110. Depending on the service available, the call can either be diverted to voice mail 112 or a call back telegram can be sent 114. Also mentioned is a portable mobile radio communication system comprising base stations with voice mail modules connected to them.

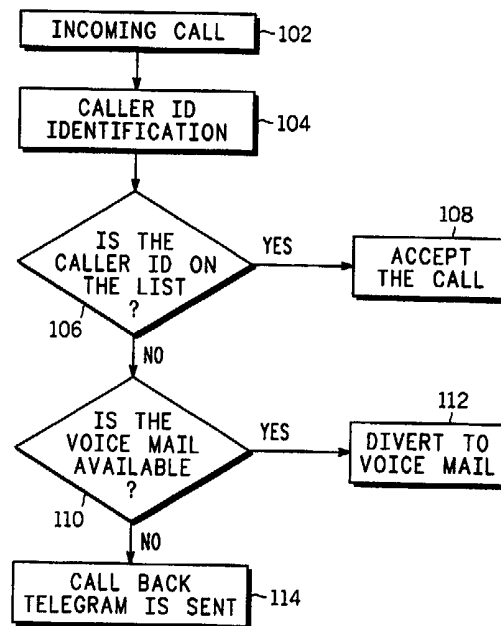
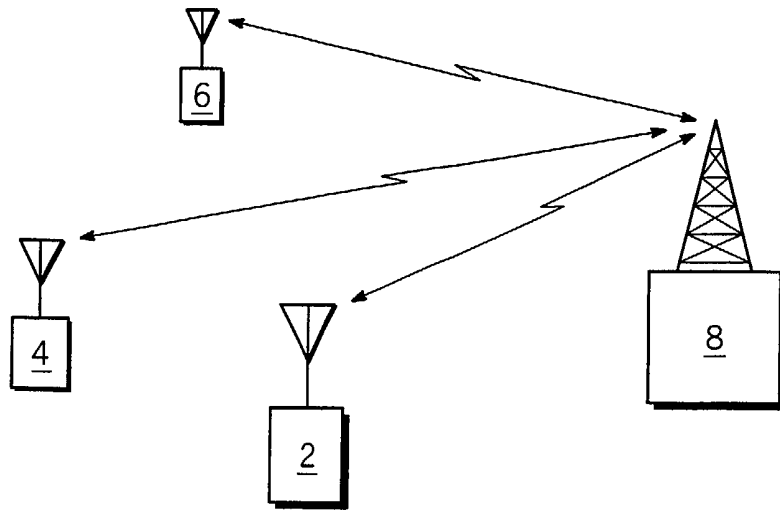


FIG. 2

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FIG. 1

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U. S. DEPARTMENT OF JUSTICE

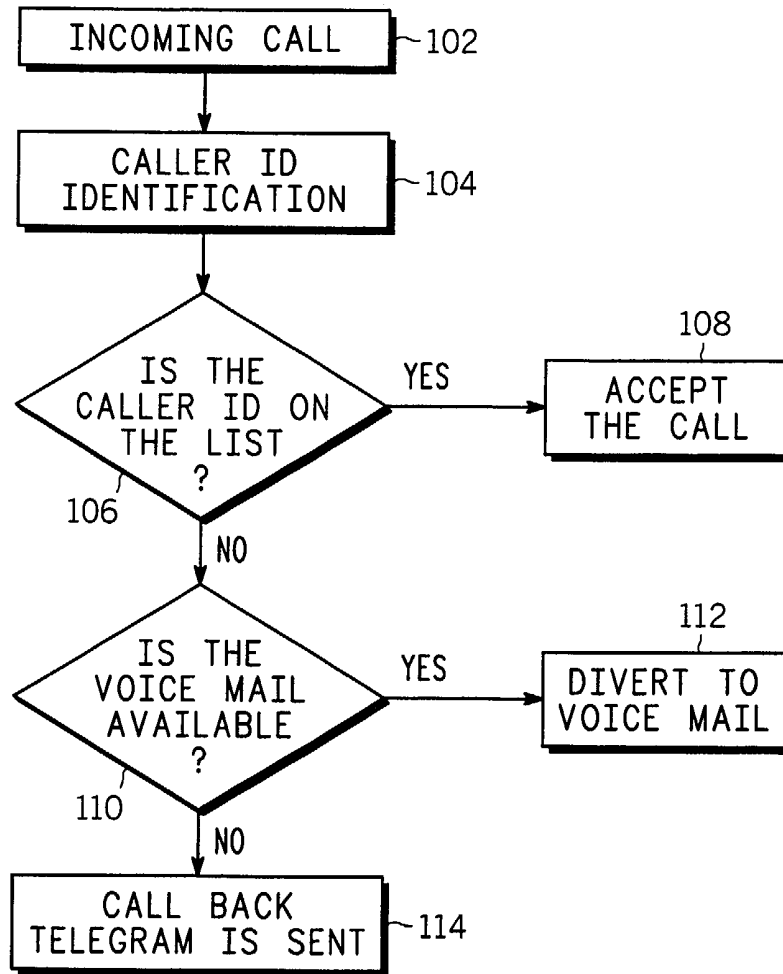


FIG. 2

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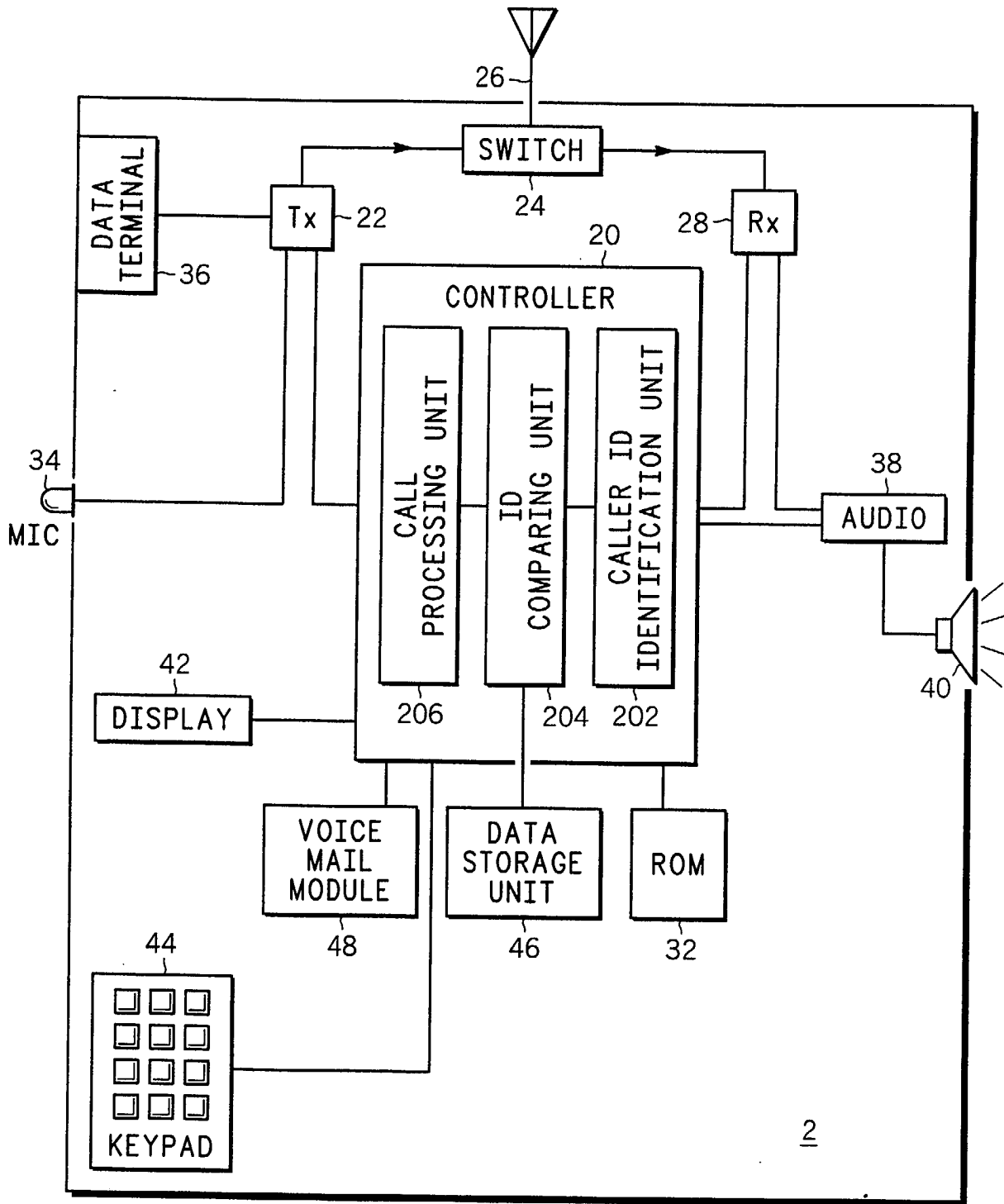


FIG. 3

RADIO COMMUNICATION SYSTEM

Technical Field

5 The present invention relates to the field of radio communication systems. In particular, the invention relates to a method of managing of incoming calls.

Background

10 In known communication systems of the prior art (e.g. GSM or two-way radio communication system, and others), the basic method used for managing the incoming call is identifying the caller ID and displaying it on the display screen of the communication device. The user of the called unit decides
15 whether or not to pick-up that call. If the decision is not to pick up the call, then the call can be diverted to voice mail, or a call back telegram is sent back to the calling unit. Another method of managing the incoming calls is to turn off the communication device and all incoming calls will be diverted to voice mail or a call back telegram will be sent back to the calling unit.

20 Fig. 1 illustrates the general scheme of a portable mobile radio (PMR) system 10. Portable mobile radios 2, 4 and 6 of Fig. 1 can communicate with a base station 8. Radios 2, 4 and 6 could equally well be mobile radios mounted in vehicles. Henceforth the term "portable mobile radio" will be used for both
25 portable and mobile radios. Each of the radios shown in Fig. 1 can communicate through base station 8 with one or more other radios. If radios 2, 4 and 6 are capable of direct mode operation, then they may communicate directly with one another or with other radios, without the communication link passing through base station 8.

30

Summary of the Invention

 It is an object of the present invention to provide a novel method and device as well as a system for managing incoming calls in a portable mobile radio communication system, which overcomes the disadvantages of the prior
35 art.

 In accordance with the present invention, there is thus provided a method for managing incoming calls. The method comprises steps of identification of the caller ID and comparing it with a predefined list of caller IDs. Depending on

the results of this comparing, the call is accepted if the caller ID is on this predefined list or further processed if it is not on the list. The further processing may mean that the incoming call can be diverted to voice mail or a call back telegram can be sent back to the calling unit.

5

Brief description of the drawings

The present invention will be understood and appreciated more fully from the following detailed description taken in conjunction with the drawings in
10 which:

Figure 1 is a schematic illustration of a portable mobile radio communication system known in the art;

15 Figure 2 is a flowchart illustrating the method of operation of the portable mobile radio of the system of Fig. 1 in managing the incoming call in accordance with an embodiment of the present invention;

20 Figure 3 is a schematic illustration of a portable mobile radio, constructed and operative in accordance with a preferred embodiment of the present invention.

Detailed description of the preferred embodiment

25 The terms "acceptable IDs", or "acceptable callers" as described henceforth include reduced number of IDs or callers that are permitted by the user to establish a live connection with the portable mobile radio. The number of IDs or callers is reduced to avoid unwanted or nuisance calls.

30 The term "predefined list" herein below refers to a subset of the existing caller IDs in a portable mobile radio contact list. The predefined list can be dynamically changed allowing fitting of the list to the user's needs.

35 Fig. 2 illustrates a method of call managing in a portable mobile radio communication system.

In the step 102 the incoming call is detected. In the next step 104 the caller ID is to be identified and in step 106 the same is compared with a

predefined list of acceptable IDs. This predefined list can be freely modifiable. If the caller ID is on the list then the call is accepted in step 108 and live connection is established. If the caller ID is not on the list, the call is further processed in step 110. Depending on service available, the call can be either
5 diverted to voice mail in step 112, or a call back telegram can be sent back in step 114.

The method illustrated in figure 2 therefore clearly enables the user to:

- 10 (i) Accept the calls from known contacts with whom the user currently wishes to speak. This may be a very restricted total number of callers, for example if the user is awaiting a particular single call, and does not want to speak to other callers whilst awaiting that call;
- 15 (ii) Direct to a voice mail all calls that the user currently does not want to answer, or send a "call back" telegram to the caller.

20 Fig. 3 illustrates a portable mobile radio 2 in accordance with the present invention.

The portable mobile radio 2 of Fig. 3 can transmit speech from its user. The portable mobile radio 2 comprises a microphone 34 which provides a signal for transmission. The signal from the microphone is transmitted by transmission
25 circuit 22. Transmission circuit 22 transmits via switch 24 and antenna 26.

The portable mobile radio 2 also has a controller 20 and a read only memory (ROM) 32. Controller 20 may be a microprocessor. ROM 32 is a permanent memory, and may be a non-volatile Electrically Erasable
30 Programmable Read Only Memory (EEPROM). A data storage unit 46 is used for storing a predefined list and is connected to the controller 20. Also a voice mail unit 48 is connected to the controller 20.

35 The portable mobile radio 2 of Fig. 3 also comprises a display 42 and keypad 44, which serve as part of the user interface circuitry of the radio. At least the keypad 44 portion of the user interface circuitry is activatable by the user. Voice activation of the radio, or other means of interaction with a user,

may also be employed. Loudspeaker 40 forms a further part of the user interface.

5 Signals received by the portable mobile radio 2 are routed by the switch to receiving circuitry 28. From there, the received signal is routed to audio processing circuitry 38 and a caller ID identification unit 202 of the controller 20. The identified caller ID is sent to an ID comparing unit 204 of the controller 20. In the ID comparing unit 204, the caller ID is compared with a predefined list of IDs that is stored in the data storage unit 46. The predefined list comprises the
10 IDs of "acceptable" callers. The result of the comparison is sent to call processing unit 206 of the controller 20.

A data terminal 36 may be provided. Terminal 36 provides a signal comprising data for transmission by transmitter circuit 22, switch 24 and
15 antenna 26.

The portable mobile radio 2 of Fig. 3 also may comprise a voice mail module 48 for storing voice messages.

20 This portable mobile radio communication system can comprise base stations and voice mail modules. The voice mail module can be connected to one base station, or to more than one base station. The voice mail module in the base station(s) may serve in addition to, or instead of, the voice mail module 48 in radio 2.

25 It will be appreciated by persons skilled in the art that the present invention is not limited to what has been particularly shown and described hereinabove. Rather the scope of the present invention is defined only by the claims, which follow.

30

Claims

1. A method of call managing in a portable mobile radio communication system, the method comprising the steps of:
 - 5 – identification of the caller ID,
 - comparing the caller ID with a predefined list ,
 - processing the call depending on the result of said comparing.
- 10 2. A method according to claim 1, wherein said processing the call is accepting the call if the caller ID is on said predefined list.
3. A method according to claim 1, wherein said processing the call is diverting the call to a voice mail if the caller ID is not on said predefined list.
- 15 4. A method according to claim 1 wherein, if the caller ID is not on said predefined list, as a result of said processing the call, a call back telegram is sent back indicating that the called unit will call back later.
- 20 5. A portable mobile radio for use in a portable mobile radio communication system,
the portable mobile radio comprising:
 - caller ID identification unit,
 - an ID comparing unit, for comparing the caller ID with a predefined list of acceptable IDs, connected to said caller ID identification unit,
 - 25 – a data storage unit, for storing the predefined list of acceptable IDs, connected to said ID comparing unit,
 - a call processing unit, connected to said ID comparing unit.
- 30 6. A portable mobile radio according to claim 5, wherein said portable mobile radio has a built-in voice mail module.
7. A portable mobile radio communication system comprising base stations and portable mobile radio units, said system comprising voice mail modules that are connected to said base stations.
- 35 8. A communication system according to claim 7 wherein one voice mail module is connected to more than one base station.



Application No: GB 0100727.7
Claims searched: 1 to 8

Examiner: Jared Stokes
Date of search: 27 September 2001

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.S): H4K (KBHF)

Int Cl (Ed.7):

Other: On-Line - EPODOC, JAPIO, WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2 268 663 A (NEC) See whole document, especially page 8 lines 14-18, page 10 lines 19-26	1,2,5,6
X	GB 2 251 762 A (Technophone) See abstract	1
X	EP 0 676 884 A2 (AT&T) See abstract, column 3 lines 7-31	1-4
A	WO 99/16181 A1 (Sun) See abstract	6
X	US 5 995 603 (Anderson) See abstract	1,2,3

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.