(12) **United States Patent** (10) Patent No.: **US 6,714,133 B2**
Hum et al. (45) Date of Patent: ***Mar. 30, 2004**

(54) **SHORT RANGE COMMUNICATION SYSTEM**

(75) Inventors: **Peng Jong Hum**, Singapore (SG);
Walter Van de Velde, Brussels (BE);
Kristiaan De Paepe, Brussels (BE)

(73) Assignee: **Koninklijke Philips Electronics N.V.**,
Eindhoven (NL)

(*) Notice: This patent issued on a continued pros-
ecution application filed under 37 CFR
1.53(d), and is subject to the twenty year
patent term provisions of 35 U.S.C.
154(a)(2).

Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 26 days.

(21) Appl. No.: **09/464,538**

(22) Filed: **Dec. 15, 1999**

(65) **Prior Publication Data**

US 2003/0122655 A1 Jul. 3, 2003

(51) Int. Cl.^{7} **G08B 23/00**
(52) U.S. Cl. **340/573.4**; 340/572.1;
340/573.1
(58) Field of Search 340/539.1, 568.1,
340/572.1, 573.1, 573.4, 691.3, 10.1, 5.8,
825.36, 825.49, 825.69, 573.7, 10.2, 10.3,
10.6, 10.31; 342/42, 44, 51

(56) **References Cited**

U.S. PATENT DOCUMENTS

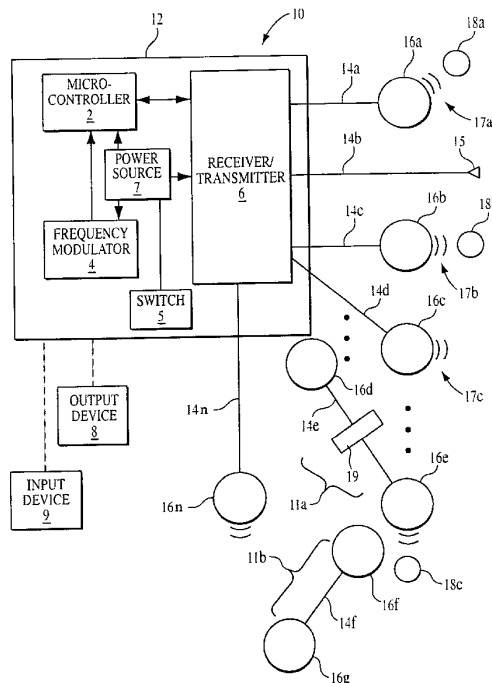|				
5,218,344 A	*	6/1993	Ricketts	340/573.4
5,339,073 A	*	8/1994	Dodd et al.	340/5.61
5,455,575 A	*	10/1995	Schuermann	342/42
6,034,622 A	*	3/2000	Levine	340/573.4
6,084,517 A	*	7/2000	Rabanne et al.	340/573.4
6,097,301 A	*	8/2000	Tutle	340/572.7
6,121,926 A	*	9/2000	Belcher et al.	342/450
6,456,191 B1	*	9/2002	Federman	340/10.2

* cited by examiner

Primary Examiner—Van Trieu
(74) *Attorney, Agent, or Firm*—Aaron Waxler

(57) **ABSTRACT**

Short range communication systems and techniques are
described. In an implementation an interrogator held near a
person interrogates multiple transponders and receives infor-
mation separately from the transponders. The interrogator
and/or the transponders may be held in an article of clothing
or in a personal effect of the person. The transponders may
transmit identifying information and/or information associ-
ated with the states of the articles of clothing or personal
effects of the person. Such a system enables the clothes worn
by a person to communicate with a plurality of items and
obtain useful information. In addition, a network system
may be configured so that any particular transponder may
communicate with another transponder or group of tran-
sponders of other locales to activate functions, cause actions
or otherwise share data and/or information.
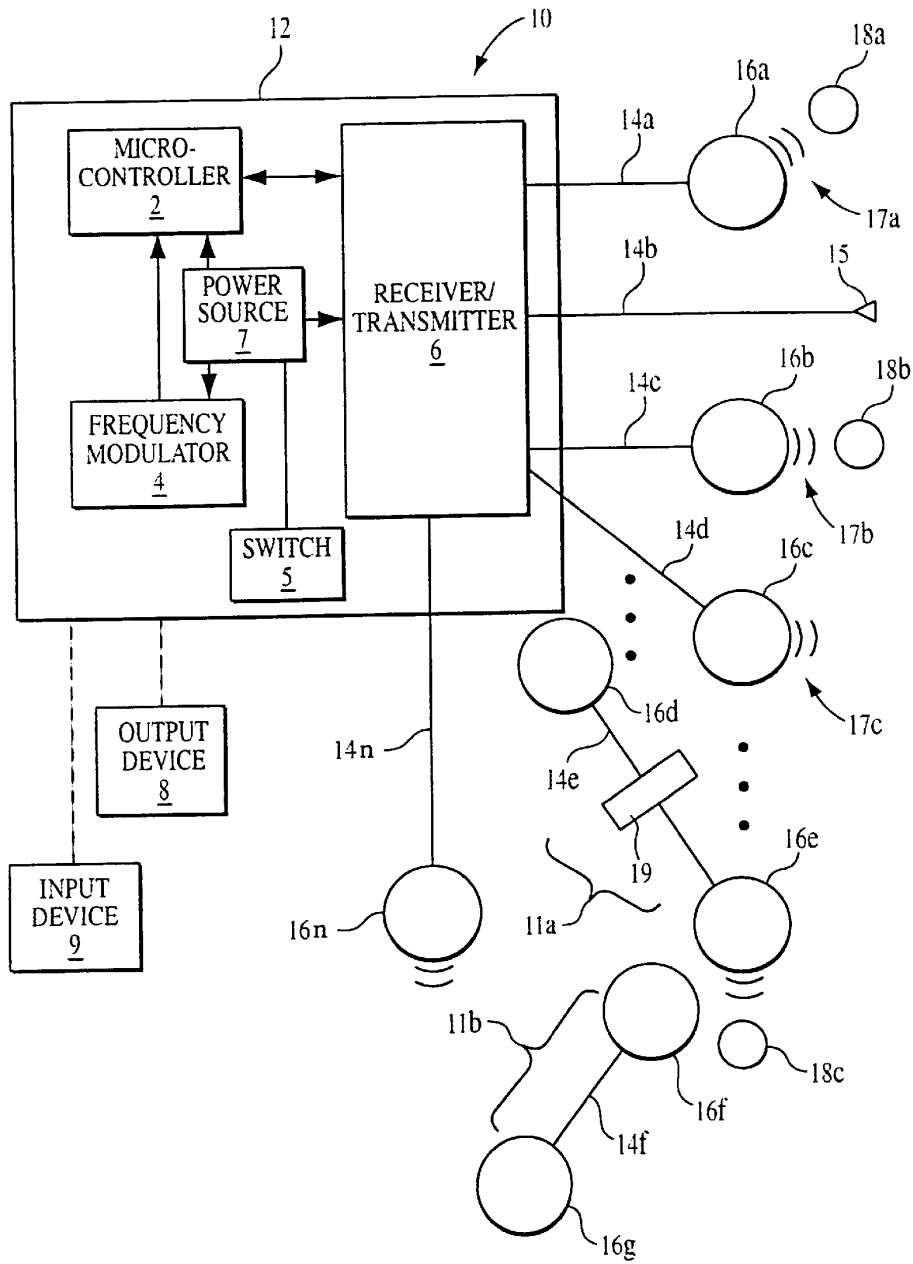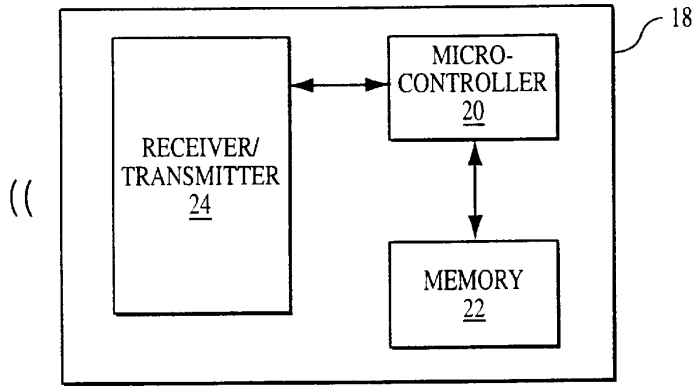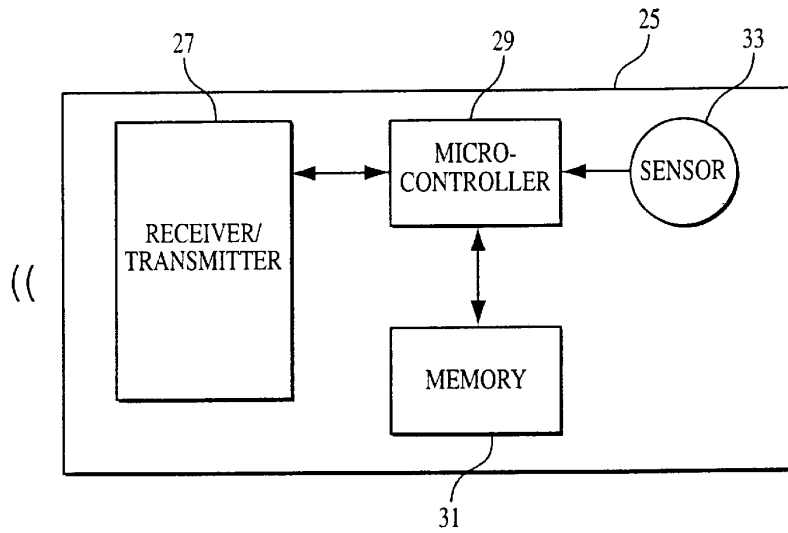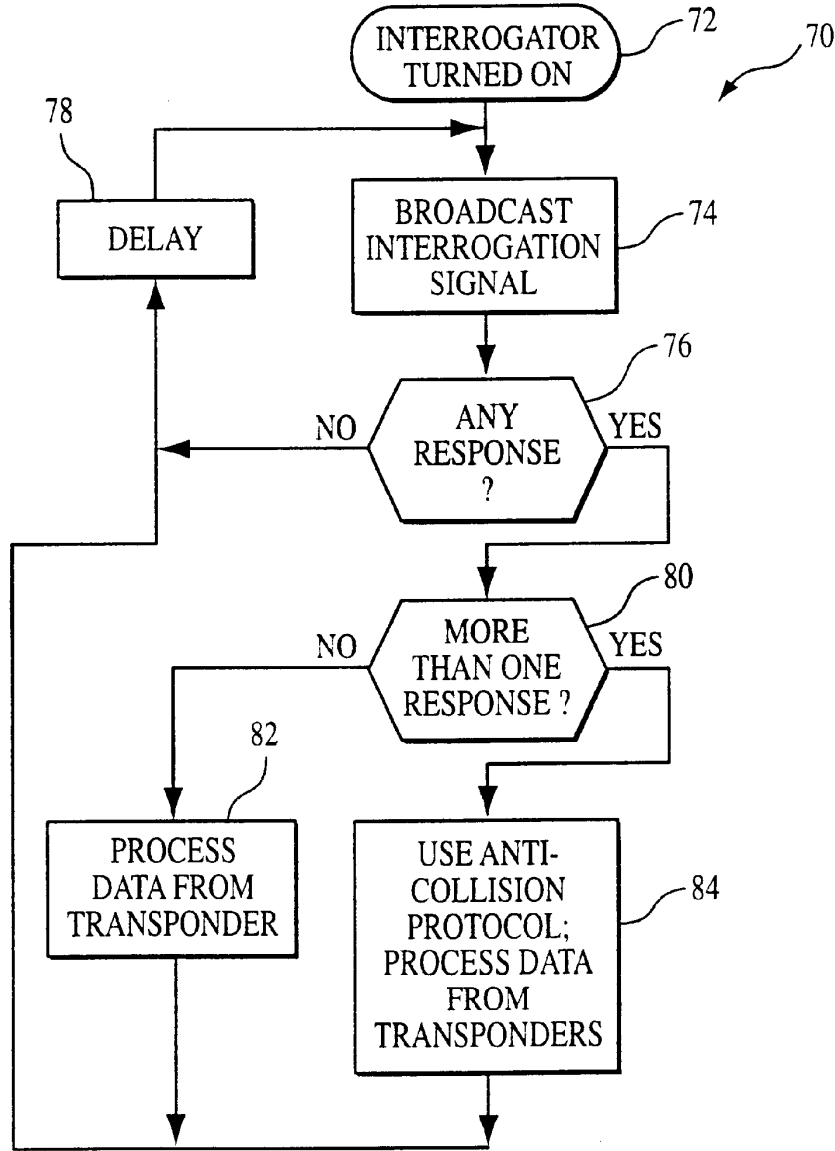
32 Claims, 10 Drawing Sheets

FIG. 1

FIG. 2A

FIG. 2B

INTERROGATOR
TURNED ON — 72

70

78

DELAY

BROADCAST
INTERROGATION
SIGNAL — 74

ANY
RESPONSE
? — 76

NO   YES

MORE
THAN ONE
RESPONSE ? — 80

NO   YES

82

PROCESS
DATA FROM
TRANSPONDER

USE ANTI-
COLLISION
PROTOCOL;
PROCESS DATA
FROM
TRANSPONDERS — 84

FIG. 3A

INTERROGATOR TURNED ON ~52

~50

m = 1 ~54

GENERATE AND TRANSMIT INTERROGATION SIGNAL m ~56

TRANSPONDER RESPONSE RECEIVED ? ~58

NO

YES

60

INTERROGATOR PROCESS DATA; INFO DISPLAYED

66

m = m + 1

68

DOES m >x ? (WHERE x IS TOTAL NO. OF POSSIBLE RESPONSES)

YES

NO

m = m + 1 ~62

NO

m >x ? ~64

YES

FIG. 3B

INTERROGATOR TURNED ON ~91

TRANSMIT INTERROGATION SIGNAL ~92

RESPONSE RECEIVED WITHIN PREDETERMINED LIMIT ? ~93

95

NO

YES

94

INFORM USER TRANSPONDER NOT FOUND
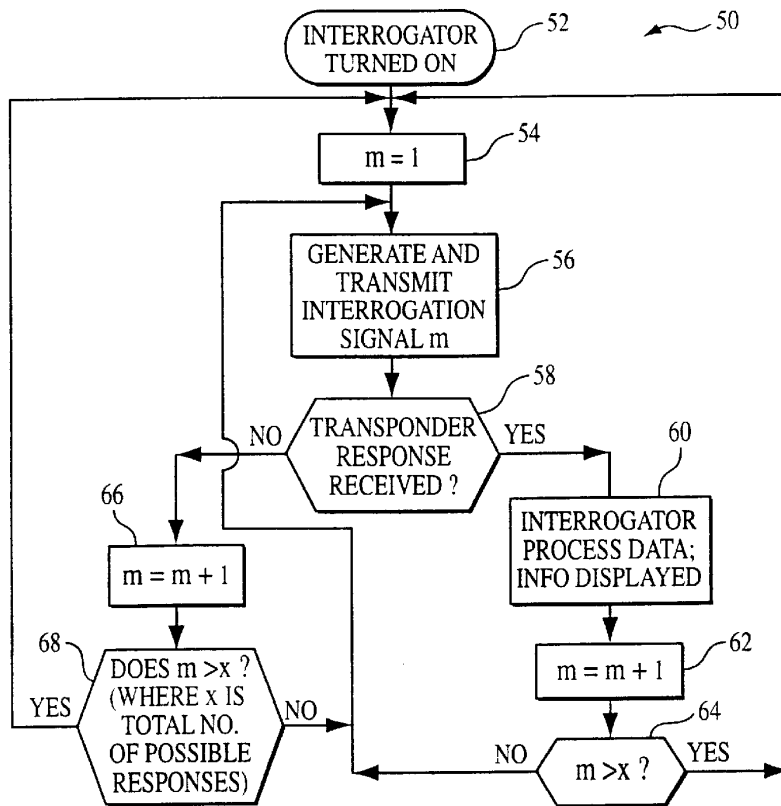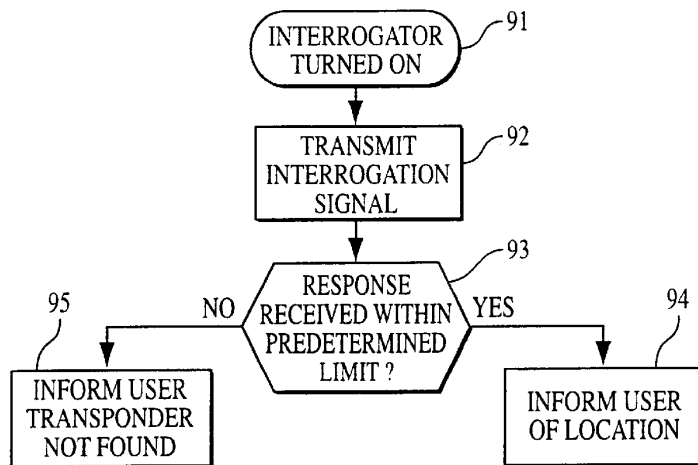
INFORM USER OF LOCATION

FIG. 3C

DOCKET ALARM

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts

Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research

With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips

Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS
Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS
Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS
Sync your system to PACER to automate legal marketing.