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(54) Checking system for use in parking lots

(57) A parking lot checking system includes a computer base connected to a plurality of numbered position members such as monitors and the monitors are put at entrances or suitable positions in the parking lot. A computer-detector interface member, a data-collection interface member and a power supply are respectively connected to the computer base and a plurality of detectors. Each of the detectors is located on a parking space so that the information that the parking space is occupied or not can be shown in the numbered position members for reference of the controllers and/or the drivers.

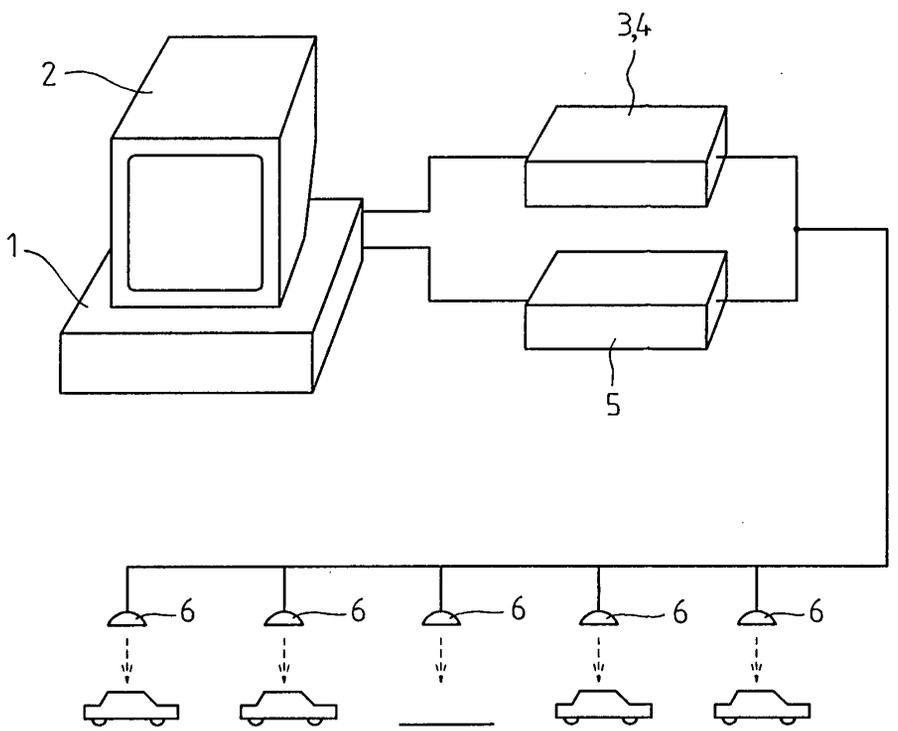

FIG.1

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Description

[0001] The present invention relates to a parking lot checking system that checks each parking space and shows the information on monitor of a computer so as to assist the drivers to find the available spaces quickly.

BACKGROUND OF THE INVENTION

[0002] A conventional way to park a car in a parking lot is to drive the car slowly and find out an empty parking space. This conventional method for finding a parking space has no problem when there are many empty parking spaces can be used. However, if there are not enough parking spaces such as in the parking lots of a department store which raises a promotion activity, many cars are waiting for a parking space and the drivers could waste a lot of time to find a parking space. Even if the driver who enters the parking lot, he/she could not find a parking space first. Normally, the department store will send their employees to guide the drivers in the cross sections of the parking lot and each employee has to equipped with a communication phone to share the parking space information in each floor of the parking lot.

SUMMARY OF THE INVENTION

[0003] In accordance with one aspect of the present invention, there is provided a parking lot checking system and comprises a computer base connected to a plurality of numbered position members put at entrances or suitable positions in the parking lot. A computer-detector interface member, a data-collection interface member and a power supply are respectively connected to the computer base. A plurality detectors are connected to the computer-detector interface member, the data-collection interface member and a power supply. Each of the detectors is located on a parking space so as to detect whether the parking space is occupied or not.

[0004] The primary object of the present invention is to provide a system that includes monitors which show which parking space is occupied by a detector on each parking space so that the drivers may drive to the empty space directly.

[0005] The present invention will become more obvious from the following description when taken in connection with the accompanying drawings which show, for purposes of illustration only, a preferred embodiment in accordance with the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006]

Fig. 1 is an illustrative view to show the connection of the parking lot checking system of the present invention;

Fig. 2 is a flow chart for the connection between parts composed of the parking lot checking system of the present invention;

Fig. 3 is a display mold shown in the monitor of the parking lot checking system of the present invention;

Fig. 4 is a circuit diagram for illustrating the computer-detector interface member;

Fig. 5 is a circuit diagram for illustrating the data-collection interface member, and

Fig. 6 is a circuit diagram for illustrating the detectors used in the parking lot checking system of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0007] Referring to Figs. 1 and 2, the parking lot checking system of the present invention comprises a computer base 1 connected to a plurality of numbered position members 2 which can be monitors or display boards and put at entrances or proper positions of a parking lot. A computer-detector interface member 3 which can be a RS485 cable, a data-collection interface member 4 and a power supply 5 are connected to the computer base 1. In order to keep a good operation condition for the computer base 1, an uncut-power-system (UPS) is included in the power supply 5 so as to keep the computer base 1 in a continuous condition even if the city's power supply is fluctuated or cut. The computer-detector interface member 3, the data-collection interface member 4 and the power supply 5 then are connected to a plurality detectors 6. Each the detectors 6 is located on a parking space so as to detect the situation of the parking spaces. If the parking space is occupied, a signal will be sent to the data-collection interface member 4 and the computer-detector interface member 3, and displayed on the position members 2 for reference of the controllers or drivers in the parking lot.

[0008] Figure 3 shows the display mold on the screen of the position members 2. The picture illustrates the scan view of a specific floor of the parking lot so that the drivers have a clear and simply message to park his/her car. If there is no space in this floor, a "full" message will also be shown on the screen of the position members 2.

[0009] In the circuit of the computer-detector interface member 3 as shown in Fig. 4, a signal with positive or minus 12V is sent to P13. The signal is then transferred to be 5V via P11 of IC(A) and sent it to IC(B). The signal submitted from IC(B) to P12 is transferred from 5V to 12V via P14 of IC(A), and then sent to computer base 1.

[0010] Figure 5 shows the circuit of data-collection interface member, wherein P1 receives a signal from a sub-member and P2 sends a signal to the sub-member. The power of sub-member is controlled by P3. P9 is IC duplicated. The communication path between the computer base 1 and AT89C51 is that the P11 sends a signal to IC(B) on left side and the left side IC(B) then sends a

signal to the IC(B) on right side. The signal is then passed to P10. P35 to P39 are computer base identification numbers.

[0011] Figure 6 shows the circuit of the detector 6 wherein C1 and C2 are the positive pole and negative pole of the infra-red detectors. C2 is a signal of an infra-red sensor which detects the paring lot. It is a high signal when no car is in the parking lot and the signal is low when there is a car in the parking lot. S 1 and S3 are positive end and negative end for being connected to the power source of the computer base 1. S2 receives a signal from the computer base 1 or sends a signal to the computer base 1. The P17 of the PIC16C54 receives the high or low signal detected by the infra-red sensor, wherein the P4 is IC duplication, P1 receives signals and P18 sending signals. P 15 and P16 are connected to basic oscillation frequency of IC. P6 to P11 are identification numbers of sub-machine.

[0012] The signals or information that concern the situations of the parking lots may also be sent to the drivers' PDA or WAP devices so that the drivers have enough time to make their decisions when approaching the parking areas.

[0013] While we have shown and described the embodiment in accordance with the present invention, it should be clear to those skilled in the art that further embodiments may be made without departing from the scope of the present invention.

Claims

1. A parking lot checking system comprising:

a computer base connected to a plurality of numbered position members, a computer-detector interface member, a data-collection interface member and a power supply, said computer-detector interface member, said data-collection interface member and said power supply connected to a plurality detectors, each said detectors adapted to be located on a parking space, said numbered position members located at an entrance of the parking lot.

2. The system as claimed in claim 1, wherein said numbered position members are monitors.

3. The system as claimed in claim 1, wherein said data-collection interface member is an RS485 cable.

4. The system as claimed in claim 1 further comprising an uncut-power-system included in said power supply.

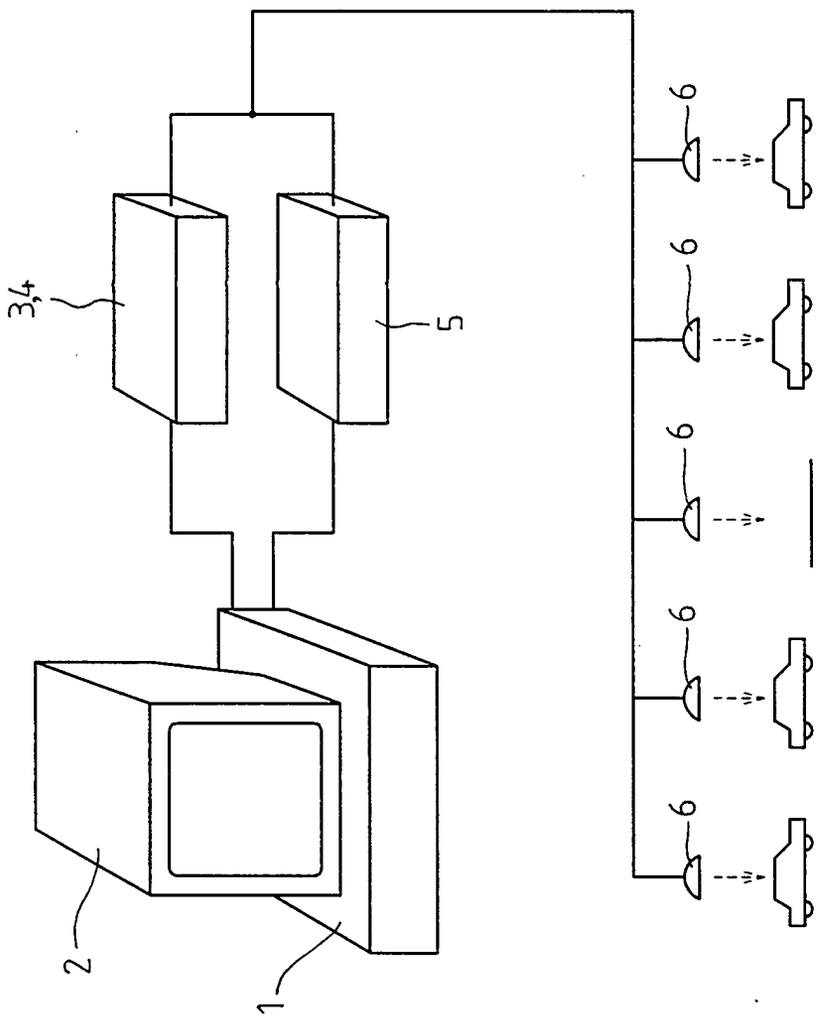

FIG.1

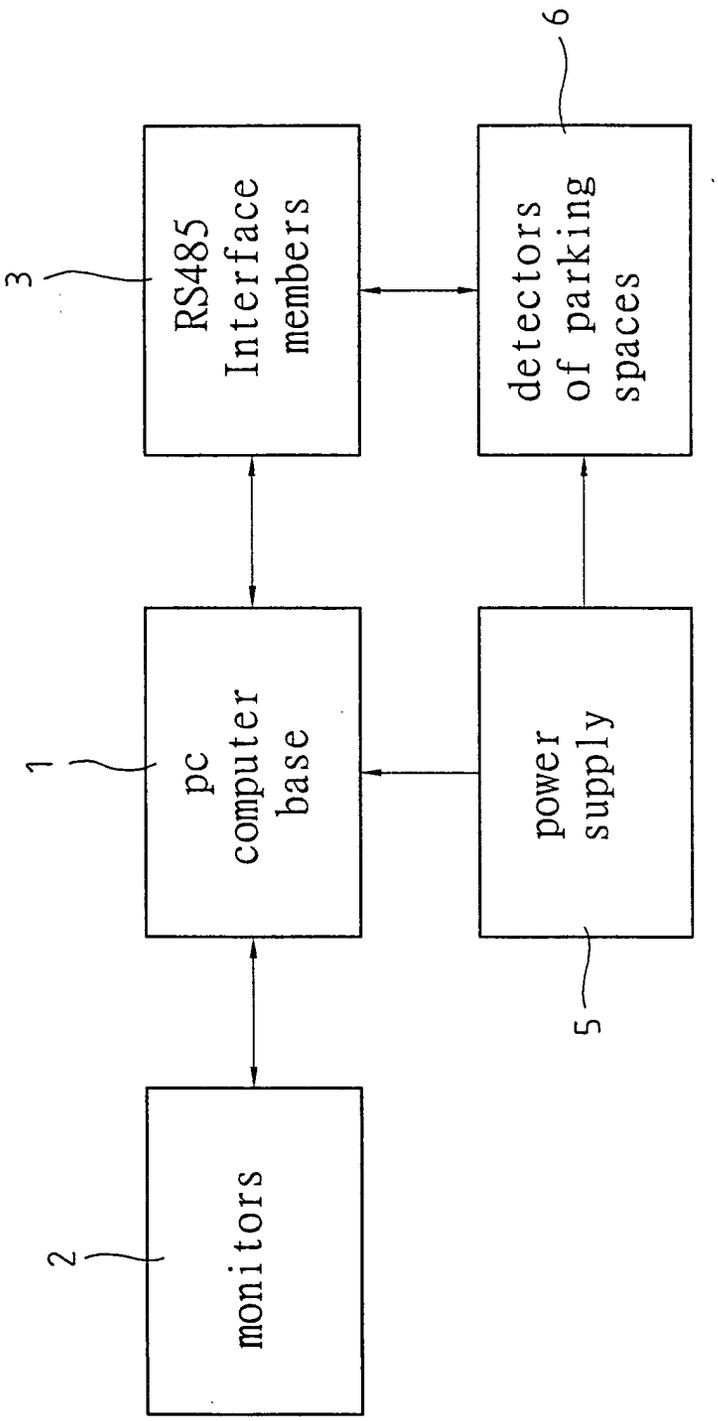
6
3
RS485 Interface members
detectors of parking spaces
1
pc computer base
power supply
5
2
monitors

FIG.2

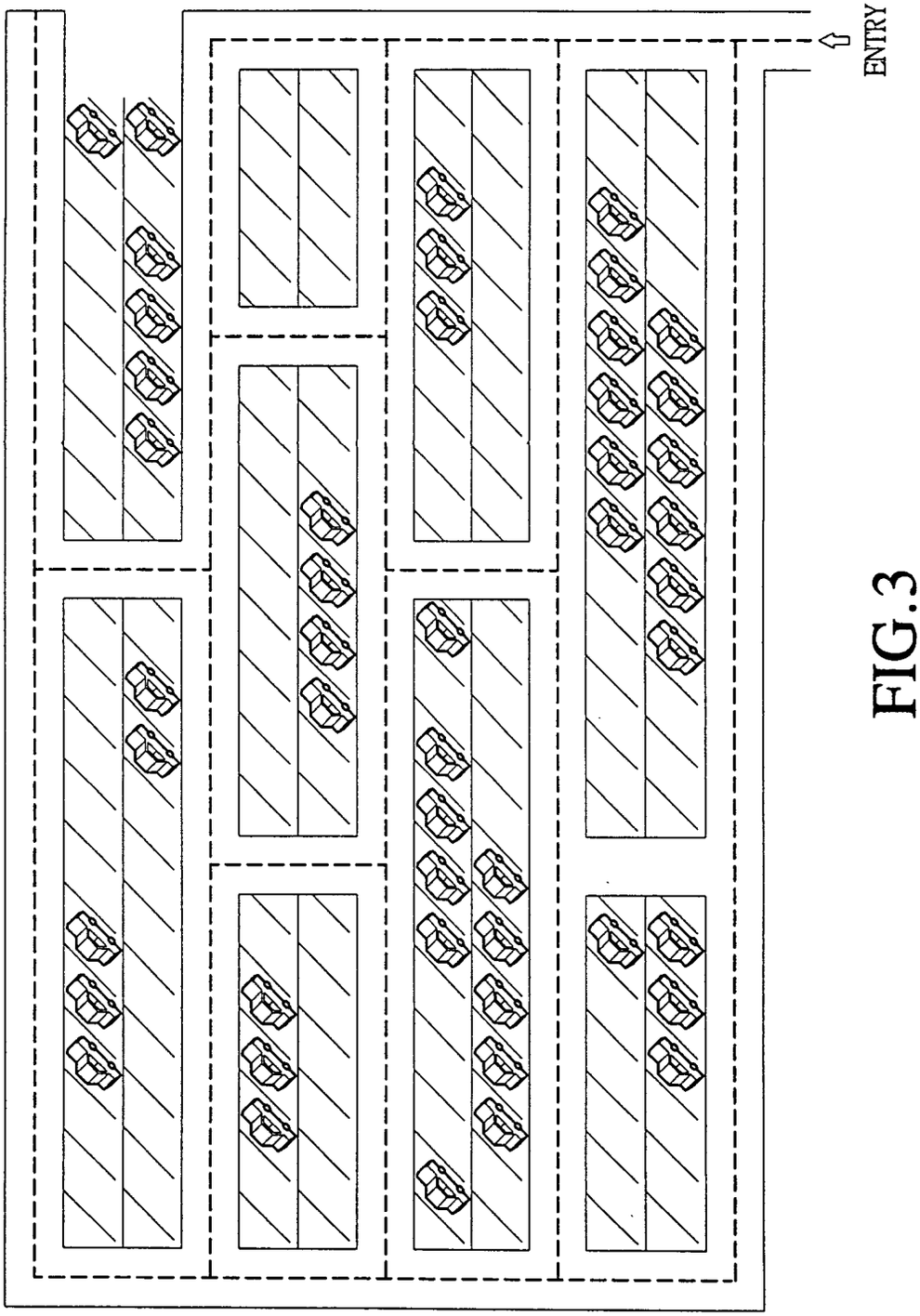

FIG.3

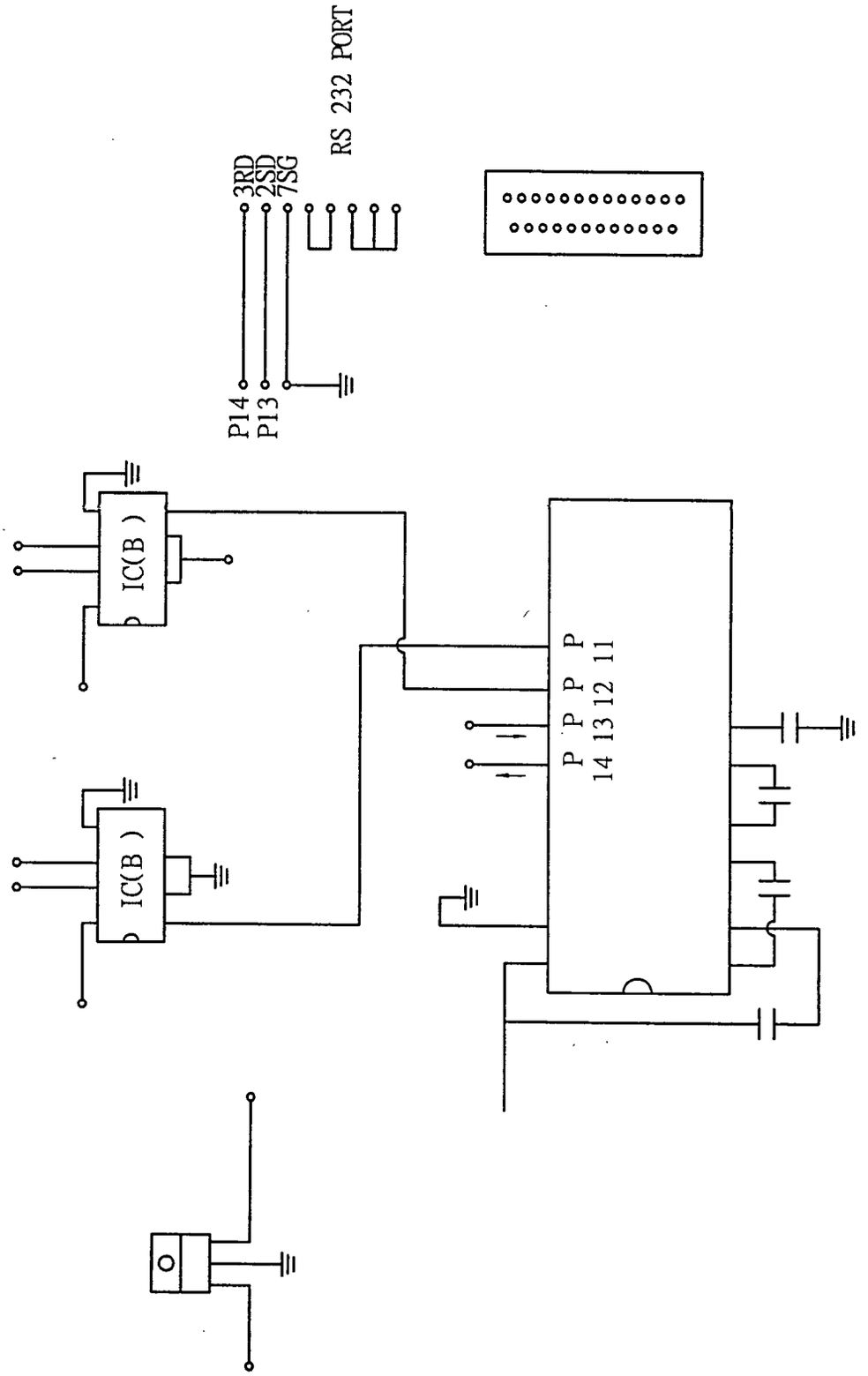

FIG.4

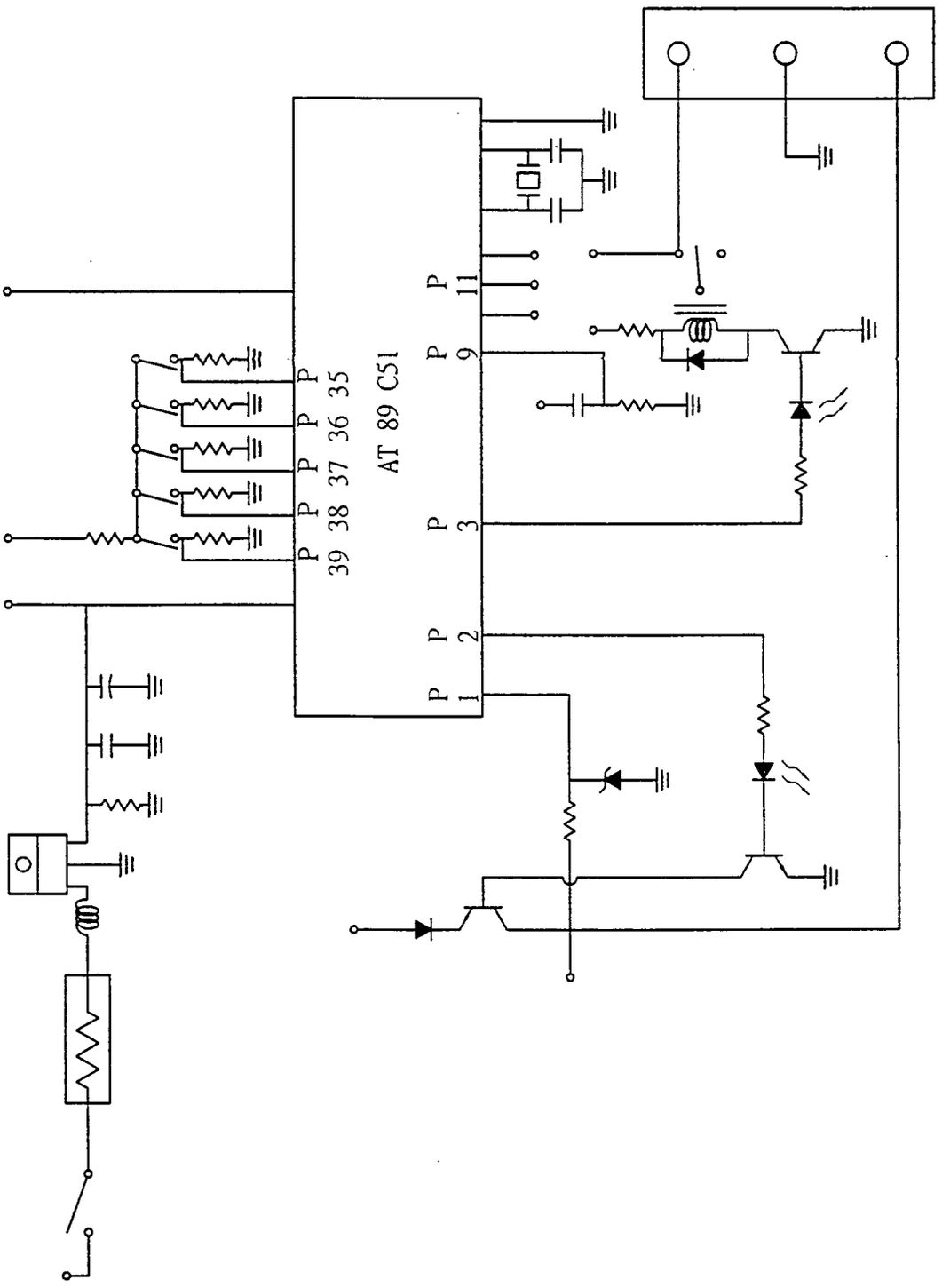

FIG.5

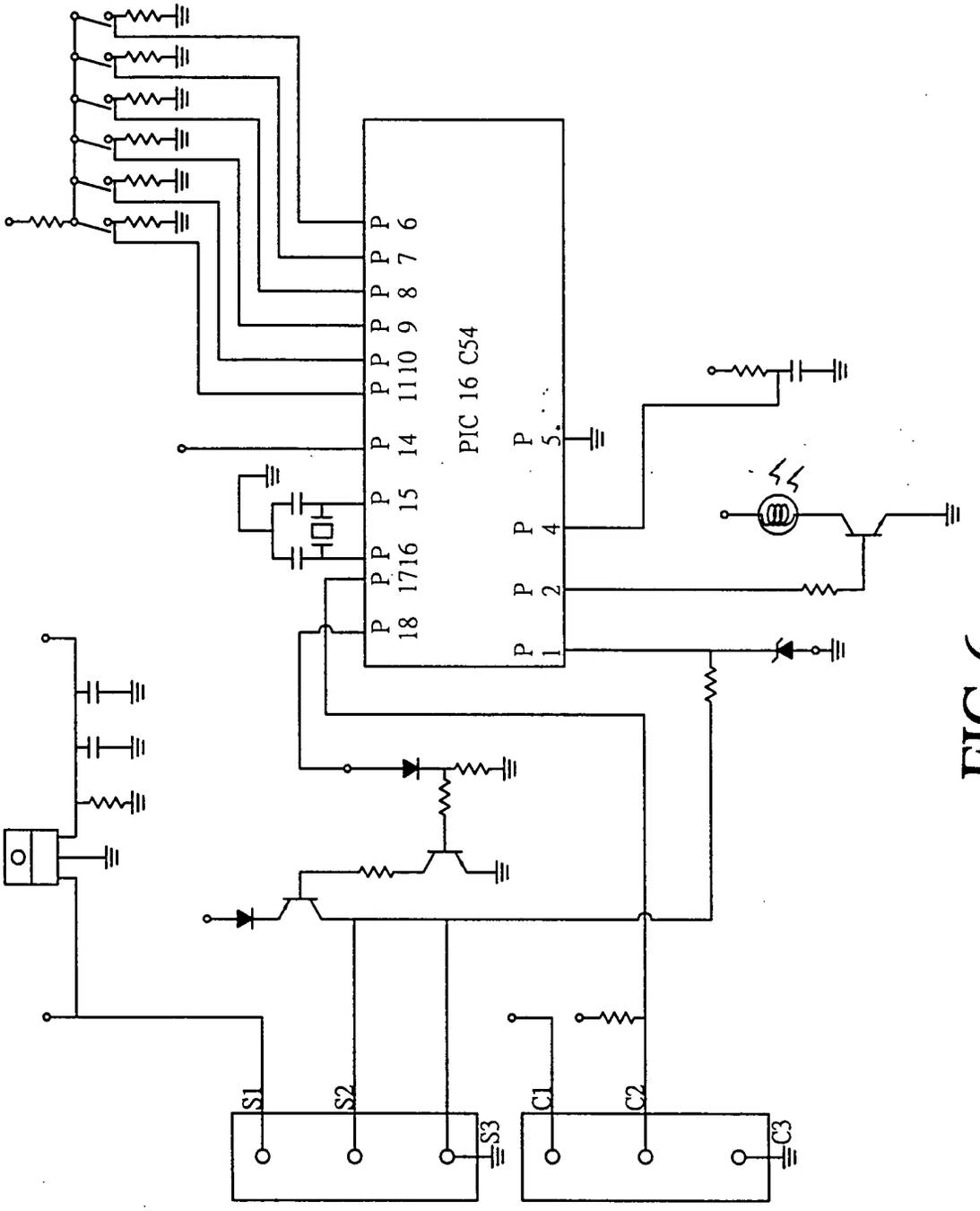

FIG.6

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EUROPEAN SEARCH REPORT

Application Number
EP 01 11 3155

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
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X	WO 01 00448 A (KIM SANG GOOK ;YOO CHUL JIN (US); PAHNG DANIEL YONGSUK (US); PREMI) 4 January 2001 (2001-01-04) * the whole document *	1	
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TECHNICAL FIELDS SEARCHED (Int.Cl.7)

E04H
G08G

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	19 September 2001	Delzor, F

CATEGORY OF CITED DOCUMENTS

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