

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 1 071 046 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:

24.01.2001 Bulletin 2001/04

(51) Int. Cl.⁷: **G07C 1/10, G07C 9/00**

(21) Application number: **00202655.7**

(22) Date of filing: **24.07.2000**

(84) Designated Contracting States:

**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**

Designated Extension States:

AL LT LV MK RO SI

(30) Priority: **22.07.1999 NL 1012667**

(71) Applicant:

**N.V. Nederlandsche Apparatenfabriek NEDAP
7141 DC Groenlo (NL)**

(72) Inventor:

**Hogen Esch, Johannes Harm Lukas
7122 ZN Aalten (NL)**

(74) Representative:

**Prins, Adrianus Willem et al
Vereenigde,
Nieuwe Parklaan 97
2587 BN Den Haag (NL)**

(54) **Educational presence registration system**

(57) A method and system for recording the presence and absence of pupils and students by means of a data logger. With the data logger, which is provided with a clock, the identity of a contactless radio-frequency identification label is read to record the presence of the relevant pupil and to transfer this at a later time to an information processing system. To simplify the log-in operation, a wall data logger where the pupils themselves log in, can be arranged at the entrance to the classroom, so that all information can be read in one operation into the hand data logger of the teacher. The hand data logger can further be provided with a microphone and a digitizing circuit for storing a small amount of spoken text and transferring it to the information processing system. If the transfer has proceeded well, the stored information can be removed from the data logger.

EP 1 071 046 A1

Description

[0001] The invention relates to a system and a method for recording the presence and absence of pupils and students with teachers.

[0002] Because the composition of the classes in connection with educational individualization greatly varies, a substantial need arises for a system with which the attendance of pupils and students can be recorded, without requiring infrastructural measures, such as the installation of connection networks. The latter partly because greatly varying localities are used for giving lessons, because more work is done on a project basis.

[0003] The present invention has for its object to provide a solution for this recording of pupils and students. To this end, the system according to the invention comprises at least one hand data logger arranged to be taken along by a teacher for wirelessly reading an identification code stored in an identification label, at least one identification label arranged to be taken along by a pupil and a central recording device, which identification label is provided with an identification code which can be wirelessly read by the hand data logger when the identification label is near the data logger for recording the presence of the pupil with the teacher, the hand data logger is provided with a time clock for generating time-representing information about the time at which the identification code is read and memory means for storing the read identification code in combination with the associated time-representing information, and which hand data logger and central recording system are arranged to feed the identification code and associated time-representing information stored in the memory of the hand data logger, as well as an identification code of the relevant hand data logger or the teacher to the central recording device for further processing.

[0004] In use, the teacher can take along the hand data logger to a classroom where the lesson will take place. When the pupils then go to the relevant classroom, the hand data logger will read the identification codes of the identification labels of the relevant pupils. To this end, the hand data logger may be provided with means for generating an electromagnetic interrogation field. The identification labels may be provided with known per se resonance circuits coupled to memory means in which the relevant identification codes are stored. When an identification label is introduced into the interrogation field, this will react by emitting the identification code. This is received by the hand data logger. Thus the presence of pupils with the teacher is recorded. Moreover, the recording time is stored in the hand data logger. When at a later time the teacher couples his hand data logger to the central recording system, the contents of the memory can be read by the central recording system for further processing. On the other hand, this coupling may be effected wirelessly. Further processing may, for instance, mean that the recording system determines which pupils attended and

which pupils did not attend the relevant lesson given by the teacher. To this end, the central recording device may be provided with a timetable having included therein which pupils are to report to which teachers at which time. It should be noted here that the teacher himself can manually input his identity in the central recording device. It is also possible, however, that the hand data logger itself is provided with an identification code which, when the memory of the hand data logger is read by the central recording device, is also inputted in the central recording device. The central recording device is then also provided with information about which identification code of the relevant hand data logger belongs to which teacher.

[0005] To simplify the recording of the above times, the handy data logger may be provided with a receiving circuit which enables reading of the identification code of the wireless radio-frequency identification label which each pupil possesses, and the identification code of which in the central recording device is coupled to the relevant pupil. Furthermore, to record the above times, this hand data logger is also provided with the clock and the memory for storing this information together with the identity of the contactless radio-frequency identification label of the pupil.

[0006] The collected information in the hand data logger may, for instance, be transferred at the end of the working day to the central recording device where this information is collected and used to record the presence and absence of the pupils or students during the lessons.

[0007] In order that no additional buttons are required on the hand data logger, the clock is, for instance, not set at the real date and time, but a relative date and time are used in the hand data logger. The real times of logging-in of the pupils can be calculated by means of the relative dates and times as recorded in the hand data logger, and the real date and time at the moment of the transfer of information to the central information processing system.

[0008] By also giving the hand data logger itself a unique identification code and coupling it to the identity of the teacher, it can be derived via the central recording device which pupils were present at which lessons. A lesson is characterized herein by a teacher and a time, in brief, the predetermined timetable stored in the recording device.

[0009] The transfer of all information collected in the hand data logger may, for instance, be transferred every day by telephone to the central recording device by means of a modem function built into the hand data logger. Thus no additional device is required for the transfer of the information.

[0010] The transfer of the information from the hand data logger to the recording device may also take place via a contactless transmitter/receiver which is connected with the recording device directly or, if required, also by means of a modem function.

[0011] When all information is correctly transferred to the recording device, the information can be removed from the hand data logger, so that it is ready again for storing new information.

[0012] To simplify the log-in operation for the teacher, a wall data logger may also be arranged or installed within the system at the entrance to a classroom where at the beginning of the lesson the pupils or students are to present their contactless radio-frequency identification labels for reading out so as to record their presence with date and time. The teacher need not read in all identification labels of the pupils, then, but can take over this information in one operation, also contactlessly, from the stationary wall data logger at the entrance to the classroom. With the wall data logger the date and time clock is not necessarily set at the real date and time either, but, like with the hand data logger, a relative date and time is used. The real times of logging-in of the pupils are preferably calculated by means of the relative dates and times as recorded in the wall data logger and the relative dates and times of the hand data logger at the moment of the transfer of the information from the wall data logger to the hand data logger of the teacher. To enable checking, the above stationary wall data logger may be provided with a display on which the number of logged-in pupils can be read. In case of a difference between the number of logged-in pupils and the number of pupils present the teacher can repeat the log-in procedure by means of his hand data logger. Moreover, all information in the stationary wall data logger can be erased after this information is taken over into the hand data logger of the teacher. The transfer of the presence information to the central information processing system takes place as described before by means of the hand data logger. Here the relative time of the clock of the hand data logger is preferably also transferred at the moment of the transfer of information to the recording device, and the real time of this transfer is also generated in the recording device to calculate the real times at which the relevant identification labels have been recorded by the hand data logger or the wall data logger.

[0013] To pass additional information to a pupils records department and, also, to pass any particulars, the hand data logger may optionally be provided with a microphone, a digitizing circuit and a larger memory element to record not only the dates and times of logging-in and the identification code, but also a limited amount of spoken text. This information may also be transferred to the recording device.

[0014] According to the method for recording the presence and absence of pupils and students with teachers it holds that a hand data logger is assigned to a teacher, which is arranged to be carried by a teacher for wirelessly reading an identification code stored in an identification label, at least one identification label is put at the disposal of a pupil, and in which method a central recording device is used, the identification label is pro-

vided with an identification code which can be wirelessly read by the hand data logger, and the hand data logger is provided with a time clock for generating time-representing information about the time at which the identification code is read, and memory means for storing the read identification code in combination with the associated time-representing information, which method further comprises the following steps: the identification code of the identification label is read by the data logger for recording the presence of the pupil with the teacher; the read identification code, together with the time-representing information generated by the time clock of the hand data logger about the time at which the identification code is read, is stored in the memory of the hand data logger; and the identification code and associated time-representing information stored in the memory of the hand data logger, as well as an identification code of the relevant hand data logger or the teacher is fed to the recording device at a later time for further processing.

[0015] The invention will now be explained in more detail with reference to the drawings, in which:

Fig. 1 shows a possible embodiment of a system according to the invention;

Fig. 2a shows a possible embodiment of a hand data logger of the system of Fig. 1;

Fig. 2b shows a possible embodiment of a wall data logger of the system of Fig. 1;

Fig. 2c shows a possible embodiment of a recording device of the system of Fig. 1; and

Fig. 2d shows a possible embodiment of an identification label of the system of Fig. 1;

In Fig. 1 reference numeral 1 denotes a system for registering the presence and absence of pupils or students 2.i (i = 1,2,3) with teachers 4.j (j = 1,2). The system comprises a plurality of hand data loggers 6.j (j = 1,2, ...), which are identical in this example. To each teacher 4.j, who is going to give lessons, is assigned such a hand data logger. The hand data logger 6.j may have the shape of a key ring which can be carried by a teacher. Furthermore, the system comprises a plurality of identification labels 8.i. Each pupil is provided with such an identification label..

[0016] Each identification label 8.i may, for instance, be provided with a known per se resonance circuit 10 and a memory element 12 coupled thereto, in which a unique identification code is stored. Each hand data logger 6.j is provided with transmitting and receiving means 14 for generating an electromagnetic interrogation field. When the identification label 8.i is introduced into such a field, this will react by emitting the identification code stored in the memory element 12 of the relevant identification label. The hand data logger 6.j is provided with transmitting and receiving means 14 for receiving this emitted identification code. To this end, the hand data logger may operate according to the

known per se transmission or absorption principle. The received identification code is stored in a memory 16 of the hand data logger. The system is further provided with a central recording device 18.

[0017] In this example the teacher 4.j is in a classroom 20 to give a lesson to pupils. The teacher 4.j has taken along the hand data logger 6.j. When the pupils 2.i enter the classroom 20, the identification labels 8.i carried by the respective pupils 2.i will react by emitting a unique identification code. The hand data logger 6.j receives these identification codes and stores them in the memory 16 of the hand data logger 6.j. Because of this it is necessary that the pupils, that is to say the identification labels 8.i of the pupils, are near the hand data logger 6.j. The hand data logger 6.j is further provided with a time clock 22 for generating time-representing information about the time at which the identification codes are read. In the memory of the relevant hand data logger is stored each read identification code, in combination with the associated time-representing information relating to the time at which the hand data logger 6.j reads the relevant identification code of the identification label 8.i.

[0018] Thus the identification codes of all identification labels of all pupils present in the classroom 20 is registered by the hand data logger 6.j of the teacher 4.j. The hand data logger 6.j may, for instance, be switched on at the beginning of a lesson and be switched off by the teacher when the lesson has started. Each hand data logger 6.j and the central recording device 18 are arranged to feed the identification code and associated time-representing information stored in the memory 16 of the hand data logger 6.j to the central recording device 18 for further processing. The reading of the memory 16 of the hand data logger 6.j by the central recording device 18 can be carried out in the known per se manner. When in this example the lesson has terminated, the teacher 4.j leaves the classroom 20 and takes along his hand data logger 6.j. At the end of a working day the teacher 4.j goes to the central recording device 18 so as to realize that the memory of the hand data logger 6.j is wirelessly read by the central recording device 18. The teacher can, for instance, realize this by pressing a button of the hand data logger. The emission of the information stored in the memory 16 can be carried out by means of the with transmitting and receiving means 14. This example also shows that the teacher 4.j is with his hand data logger 6.j at a later time at the central recording device 18. The recording device is provided with receiving means 24 for receiving information emitted by the hand data logger 6.j, in this example the read identification codes together with the associated time-representing information. The teacher can further input his identity in the recording device, for which purpose this device may be provided with an input unit such as a keyboard.

[0019] In a memory 26 of the central recording device 18 may further be stored information about the

timetable to be followed by the pupils. This timetable mentions which pupils 2.i take lessons from which teacher 4.j at which time. This information can be compared with the information read from, in this example, the hand data logger 6.j and the inputted identity of the teacher so as to determine which pupils attended the lesson of the teacher 4.j and also which pupils did not attend the lesson of the teacher 4.j. This can be automatically carried out by a microprocessor 28 of the recording device. The central recording device 18 may, for instance, further be provided with means for printing out the list of pupils who were absent.

[0020] In this example it further holds that the hand data logger 6.j is provided with a hand data logger identification code, while the hand data logger 6.j and the recording device 18 are arranged to feed the hand data logger identification code to the recording device 18 together with the identification codes and associated time-representing information stored in the memory of the hand data logger 6.j. By means of information previously stored in the memory 26 of the recording device the identification code of the hand data logger can be connected with the identity of the relevant teacher 4.j. Thus it is automatically known in the central recording device 18 which teacher has his hand data logger read out. Of course, it is also possible that the teacher 4.j reporting to the central recording device manually inputs his identity at the moment his hand data logger 6.j is read by the central recording device.

[0021] Preferably, it holds that the time clock of the hand data logger generates relative time-representing information which does not necessarily correspond with the real time at which the time-representing information is generated. When the hand data logger 6.j feeds the identification code and associated time-representing information stored in the memory 16 of the hand data logger to the central recording device, it also feeds the relative time-representing information recorded by the time clock of the hand data logger to the central recording device 18. This involves time-representing information relating to a first calibration time. The system 1 is further arranged to calculate the real time at which the identification code is recorded by the hand data logger 6.j on the basis of the time-representing information stored in the memory 16 of the hand data logger 6.j about the time at which the identification code is read from the identification label, the time-representing information generated by the time clock of the hand data logger at the first calibration time and the absolute time of the first calibration time. In this example the central recording device 18 is therefore arranged to generate absolute time-representing information by means of a clock 30, while the recording device is further arranged to calculate by means of the microprocessor 28 the absolute time at which the identification code is read by the hand data logger 6.j on the basis of the time-representing information generated by the time clock 22 of the hand data logger 6.j at the first calibration time, the

time-representing information fed from the memory 16 of the hand data logger to the recording device, as well as the absolute time-representing information generated by the clock 30 of the recording device 18 at the first calibration time. In this example it holds that the first calibration time coincides with the time at which the relevant information is fed from the memory of the hand data logger to the recording device. This has the advantage that no additional operation is required to transfer the time-representing information at the first calibration time from the hand data logger to the recording device.

[0022] The real time can be determined by determining the difference between the relative time-representing information stored in the memory of the hand data logger 6.j at the time the identification code of the identification label 8.i is recorded and the relative time-representing information generated by the clock 22 at the first calibration time, in this example the moment at which the hand data logger 6.j is read out. In fact, the time lapsed between these two moments is known then. When the lapsed time is known, as well as the real time of the first calibration time, i.e. the real time at which the hand data logger 6.j is read out, the real time at which the recording of the identification code has taken place is also known by subtracting the lapsed time from the real time of the first calibration time. This calculation is carried out by the microprocessor 28.

[0023] In this example it holds that the system is further provided with a plurality of wall data loggers 32.k (k = 1,2,3, ...), which are identical in this example, and which are each arranged to be installed near an entrance to a classroom. This can be done by attaching them to a wall, placing them on a stand etc. In this example the wall data logger 32.k is attached to the wall near the entrance to the classroom 20. Each wall data logger 32.k is arranged to read and store the identification code of the identification label 8.i of the pupil 2.i. The reading and storing of the identification labels 8.i can be carried out in the same manner as discussed in relation to the hand data logger 6.j. To this end, the wall data logger 32.k may be provided with transmitting and receiving means 14 for generating an electromagnetic interrogation field and a memory 16. This electromagnetic interrogation field may, for instance, extend only near the wall data logger 32.k. Here, for instance, a distance range of 15 cm may be considered. Each pupil entering the classroom 20 is then deemed to bring his identification label 8.i to near the wall data logger 32.k so as to have the identification code of the relevant identification label read. The wall data logger is provided with a time clock 22 for generating time-representing information about the time at which the identification code is read. In the memory 16 of the wall data logger 32.k is stored the read identification code in combination with the associated time-representing information. Besides, the wall data loggers 32.k and the hand data loggers 6.j are arranged to feed the identification code and associated time-representing information stored in

the memory 16 of the wall data logger to the hand data logger 6.j of the teacher for storage in the memory 16 of the hand data logger 6.j. Thus, at the end of the lesson the teacher 4.j can go with his hand data logger 6.j to the wall data logger 32.k. Subsequently, in the known manner - for instance wirelessly and by pressing buttons of the hand and/or wall data logger - the relevant information can be transferred from the wall data logger 32.k to the hand data logger 6.j. To this end, the wall data logger 32.k may, for instance, be arranged to react when introduced into the near field of the hand data logger 6.j by emitting the contents of the memory 16 of the wall data logger. In particular, it holds that the time clock 22 of the wall data logger 32.k generates relative time-representing information which does not necessarily correspond with the real time at which the time-representing information is generated by the wall data logger 32.k. The system is arranged to calculate the real or absolute time at which the relevant identification code is read by the wall data logger 32.k, on the basis of the time-representing information stored in the memory 16 of the wall data logger 32.k and generated by the clock 22 of the wall data logger 32.k at the time when the identification code is read by the wall data logger 32.k, the time-representing information generated by the clock 22 of the wall data logger 32.k at a second calibration time, the time-representing information generated by the clock 22 of the hand data logger 6.j at a second calibration time, the information generated by the clock 22 of the hand data logger 6.j at the first calibration time, as well as the absolute time of the first calibration time.

[0024] In this example it holds that the recording device 18 is arranged to calculate the absolute time at which the identification code of the identification label 8.i is read by the wall data logger 32.k on the basis of the time-representing information generated by the time clock 22 of the wall data logger 32.k at the time the identification code of the identification label 8.i is read by the wall data logger 32.k, the time-representing information generated by the time clock 22 of the wall data logger 32.k at the second calibration time, the time-representing information generated by the time clock 22 of the hand data logger 6.j at the second calibration time, the time-representing information generated by the time clock 22 of the hand data logger 6.j at the first calibration time, and the absolute time-representing information generated by the clock 30 of the recording device 18 at the first calibration time. It preferably holds again that the first calibration time coincides with the time at which the relevant information is fed from the memory 16 of the hand data logger 6.j to the recording device 18. Furthermore, it preferably holds that the second calibration time coincides with the time at which the information is fed from the memory 16 of the wall data logger 32.k to the hand data logger 6.j. When the contents of the memory are transmitted from the wall data logger to the hand data logger, the relative time-representing information generated by the time clock 22 of the wall

data logger 32.k at the moment of transmitting is also emitted by the wall data logger so as to be received by the hand data logger. This information is also stored in the memory of the hand data logger 6.j.

[0025] When, subsequently, at the end of the lesson the teacher 4.j goes with his hand data logger 6.j to the central recording device 18 for reading out the information stored in the memory of the wall data logger (these are the identification codes recorded by the wall data loggers, the time-representing information generated by the clock of the wall data logger at a moment of recording of the relevant identification codes, as well as the time-representing information generated by the clocks of the wall data logger and the hand data logger at a moment of transferring the information from the wall data logger to the hand data logger), the time-representing information generated by the time clock of the hand data logger 6.j at that moment is also fed to the central recording device 18. By means of its microprocessor 28 the recording device 18 can determine the time lapsed between the reading of the relevant identification label 8.i and the reading of the wall data logger 32.k, on the basis of the time-representing information of the hand data logger about the moment of reading of the wall data logger by the hand data logger and about the moment of reading of the hand data logger by the information recording device 18. Furthermore, on the basis of the time-representing information generated by the clock 22 of the hand data logger at the moment of reading of the wall data logger by the hand data logger and the moment of reading of the hand data logger by the recording device 18, the time lapsed between these two moments can be determined. By adding these lapsed times it can be determined how long ago from the reading of the hand data logger by the central recording device the identification code was read by the wall data logger. Because also the real time at which the hand data logger is read by the central recording device is known in the recording device by means of the clock 30, it can be calculated by the microprocessor 28 per identification label and thus per pupil when he reported to the wall data logger.

[0026] In the example it further holds that the wall data logger 32.k is provided with a display 34 for displaying the number of identification codes read by the wall data logger. Thus the teacher can simply check by counting pupils present whether all the pupils have reported to the wall data logger 32.k. In particular, it further holds that the wall data logger is arranged to erase from the memory of the wall data logger information transferred to the hand data logger. Furthermore, the hand data logger may also be provided with a microphone 36 and an A/D converter 38 for receiving and digitizing audio information for storage in the memory 16 of the hand data logger so that text spoken by the teacher can also be stored in the memory for transfer to the recording device 18.

[0027] The hand data logger may also be arranged

to erase from the memory of the hand data logger information transferred to the recording device. In particular, it further holds that the hand data logger is provided with a modem for transferring the information to the recording device.

[0028] The invention is not limited to the exemplary embodiment described herein. Thus, for instance, the wall data logger need not be attached to a wall in particular. The wall data logger may also be placed on a stand. The wall data logger, however, need not be arranged to be easily taken along by somebody. In use, this is therefore a stationary data logger.

Claims

1. A system for recording the presence and absence of pupils and students with teachers, comprising at least one hand data logger arranged to be taken along by a teacher for wirelessly reading an identification code stored in an identification label, at least one identification label arranged to be taken along by a pupil, and a central recording device, said identification label being provided with an identification code which can be wirelessly read by the hand data logger when the identification label is near the data logger for recording the presence of the pupil with the teacher, said hand data logger being provided with a time clock for generating time-representing information about the time at which the identification code is read and memory means for storing the read identification code in combination with the associated time-representing information, and said hand data logger and said central recording system being arranged to feed the identification code and associated time-representing information stored in the memory of the hand data logger, as well as an identification code of the relevant hand data logger or the teacher to the central recording device for further processing.
2. A system according to claim 1, characterized in that the hand data logger is provided with a hand data logger identification code, said hand data logger and said recording device being arranged to feed the hand data logger identification code to the recording device, together with the identification codes and associated time-representing information stored in the memory of the hand data logger.
3. A system according to claim 1 or 2, characterized in that the time clock of the hand data logger generates relative time-representing information which does not necessarily correspond with the real time at which the time-representing information is generated, said system being arranged to calculate the real time at which the identification code is recorded by the hand data logger on the basis of the time-representing information, stored in the memory of

the hand data logger, about the time at which the identification code has been read from the identification label, the time-representing information generated by the time clock of the hand data logger at the first calibration time, and the absolute time of the first calibration time..

4. A system according to claim 3, characterized in that the central recording device is arranged to generate absolute time-representing information, said recording device further being arranged to calculate the absolute time at which the identification code has been read by the hand data logger on the basis of the time-representing information generated by the time clock of the hand data logger at the first calibration time, the time-representing information fed from the memory of the hand data logger to the recording device, as well as the absolute time-representing information generated by the recording device at the first calibration time.
5. A system according to any one of the preceding claims, characterized in that the system further comprises a wall data logger arranged to be installed near an entrance of a classroom and arranged to read the identification code of the identification label of the pupil, said wall data logger being provided with a time clock for generating time-representing information about the time at which the identification code of the identification label is read and memory means for storing the read identification code in combination with the associated time-representing information, said wall data logger and said hand data logger being arranged to feed the identification code and associated time-representing information stored in the memory of the wall data logger to the hand data logger of the teacher for storage in the memory of the hand data logger.
6. A system according to claim 5, characterized in that the system is arranged to feed the information stored in the memory of the hand data logger and originating from the wall data logger to the recording device for further processing.
7. A system according to claim 3 or 4 and claim 5 or 6, characterized in that the time clock of the wall data logger generates relative time-representing information which does not necessarily correspond with the real time at which the time-representing information is generated by the wall data logger, said system being arranged to calculate, by means of the time-representing information stored in the memory of the wall data logger and generated by the clock of the wall data logger at the time the identification code has been read by the wall data logger, the time-representing information generated by

the clock of the wall data logger at a second calibration time, the time-representing information generated by the clock of the hand data logger at the second calibration time, the information generated by the clock of the hand data logger at the first calibration time, as well as the absolute time of the first calibration time at which the identification code has been read by the wall data logger.

8. A system according to claims 4 and 7, characterized in that the recording device is arranged to calculate the absolute time at which the identification code of the identification label has been read by the wall data logger on the basis of the time-representing information generated by the time clock of the wall data logger at the time the identification code of the identification label has been read by the wall data logger, the time-representing information generated by the time clock of the wall data logger at the second calibration time, the time-representing information generated by the time clock of the hand data logger at the second calibration time, the time-representing information generated by the time clock of the hand data logger at the first calibration time, and the absolute time-representing information generated by the recording device at the first calibration time.
9. A system according to any one of the preceding claims 3, 4, 7 or 8, characterized in that the first calibration time coincides with the time at which the relevant information is fed from the memory of the hand data logger to the recording device.
10. A system according to claim 7 or 8, characterized in that the second calibration time coincides with the time at which the information is fed from the memory of the wall data logger to the hand data logger.
11. A system according to any one of the preceding claims 5-10, characterized in that the wall data logger is arranged to erase information from the memory of the wall data logger, after this information has been transferred to the hand data logger.
12. A system according to any one of the preceding claims, characterized in that the hand data logger also comprises means for receiving and digitizing audio information for storage in the memory of the hand data logger, so that text also spoken by the teacher can be stored in the memory for transfer to the recording device.
13. A system according to any one of the preceding claims, characterized in that the hand data logger is arranged to erase information from the memory of the hand data logger, after this information has been transferred to the recording device.

14. A system according to any one of the preceding claims, characterized in that the hand data logger is provided with a modem for transferring the information to the recording device.
15. A method for recording the presence and absence of pupils and students with teachers, in which a hand data logger is assigned to a teacher, which is arranged to be carried by a teacher for wirelessly reading an identification code stored in an identification label, at least one identification label is put at the disposal of a pupil, and in which a central recording device is used, said identification label being provided with an identification code which can be wirelessly read by the hand data logger, and said hand data logger being provided with a time clock for generating time-representing information about the time at which the identification code is read, and memory means for storing the read identification code in combination with the associated time-representing information, which method further comprises the following steps: the identification code of the identification label is read by the data logger for recording the presence of the pupil with the teacher; the read identification code, together with the time-representing information generated by the time clock of the hand data logger about the time at which the identification code has been read, is stored in the memory of the hand data logger; and the identification code and associated time-representing information stored in the memory of the hand data logger, as well as an identification code of the relevant hand data logger of the teacher is fed at a later time to the recording device for further processing.
16. A method according to claim 15, characterized in that the hand data logger is provided with a hand data logger identification code, which hand data logger identification code is fed to the recording device, together with the identification code and associated time-representing information stored in the memory of the hand data logger.
17. A method according to claim 15 or 16, characterized in that the time clock of the hand data logger generates relative time-representing information which does not necessarily correspond with the real time at which the time-representing information is generated, said real time at which the identification code is recorded by the hand data logger being calculated by means of the time-representing information, stored in the memory of the hand data logger, about the time at which the identification code has been read, the time-representing information generated by the time clock of the hand data logger at a first calibration time, and the absolute time of the first calibration time.
18. A method according to any one of the preceding claims 15, 16 or 17, characterized in that a wall data logger is further used which is installed near an entrance of a classroom, said identification code of said identification label of the pupil being read with the wall data logger, said wall data logger being provided with a time clock with which time-representing information is generated about the time at which the identification code has been read, and memory means in which the read identification code in combination with the associated time-representing information is stored, said identification code and associated time-representing information stored in the memory of the wall data logger being fed to the hand data logger of the teacher for storage in the memory of the hand data logger.
19. A method according to claim 18, characterized in that the system is arranged to feed the information stored in the memory of the hand data logger, originating from the hand data logger, to the recording device for further processing.
20. A method according to claim 17 and claim 18 or 19, characterized in that the time clock of the wall data logger generates relative time-representing information which does not necessarily correspond with the real time at which the time-representing information is generated by the wall data logger, the absolute time being calculated at which the identification code is read by the wall data logger on the basis of the time-representing information stored in the memory of the wall data logger and generated by the clock of the wall data logger at the time the identification code has been read by the wall data logger, the time-representing information generated by the clock of the wall data logger at a second calibration time, the time-representing information generated by the clock of the hand data logger at the second calibration time, the information generated by the clock of the hand data logger at the first calibration time, as well as the absolute time of the first calibration time.
21. A method according to claim 17 or 20, characterized in that as first calibration time the time is chosen at which the relevant information is fed from the memory of the hand data logger to the recording device.
22. A method according to claim 20, characterized in that the second calibration time coincides with the time at which the information is fed from the memory of the wall data logger to the hand data logger.
23. A method according to any one of the preceding claims 15-22, characterized in that, after the information stored in the memory of the hand data log-

ger has been transferred to the recording device,
this information is erased from the memory of the
hand data logger.

24. A method according to any one of the preceding 5
claims 18-20, characterized in that, after the infor-
mation stored in the memory of the wall data logger
has been transferred to the hand data logger, this
information is erased from the memory of the wall
data logger. 10
25. A method according to any one of the preceding
claims 15-24, characterized in that text spoken by
the teacher is sampled and digitized and then
stored in the memory of the hand data logger for 15
transfer to the recording device.
26. A method according to any one of the preceding
claims 15-25, characterized in that by means of a 20
modem information is transferred from the hand
data logger to the recording device.

25

30

35

40

45

50

55

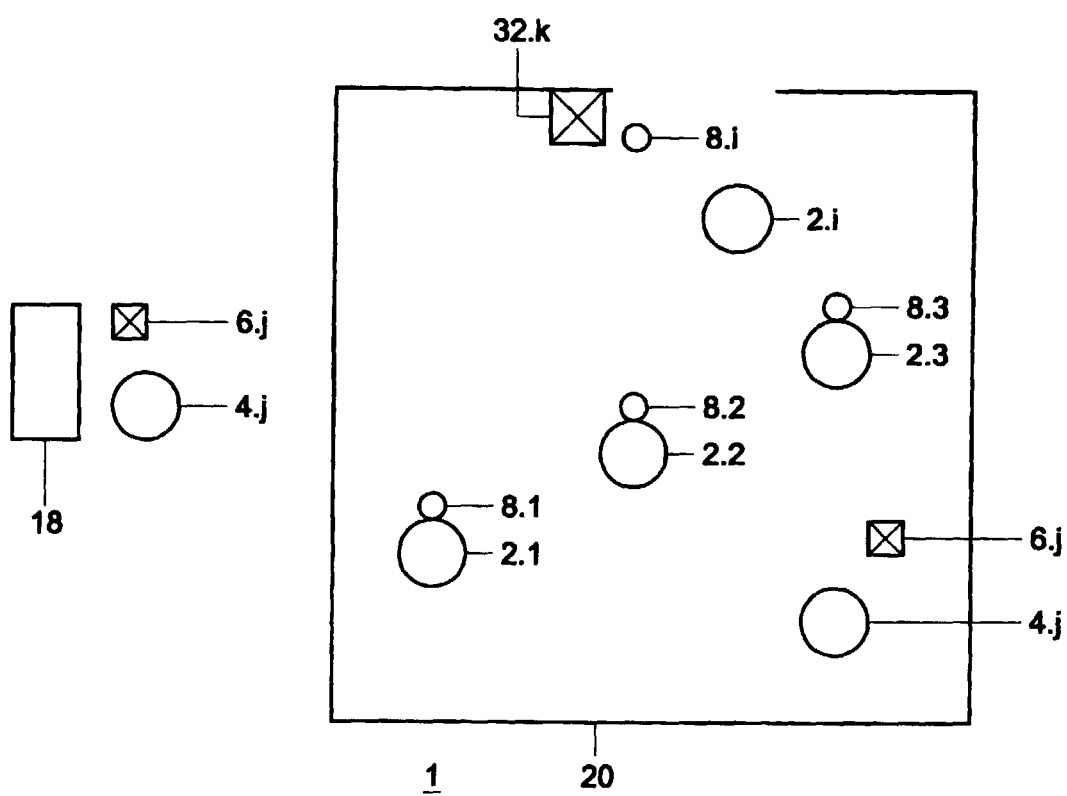


Fig. 1

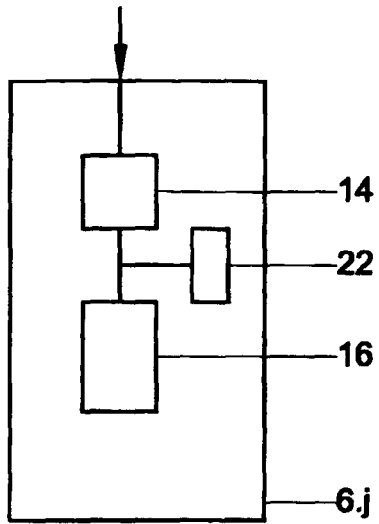


Fig. 2a

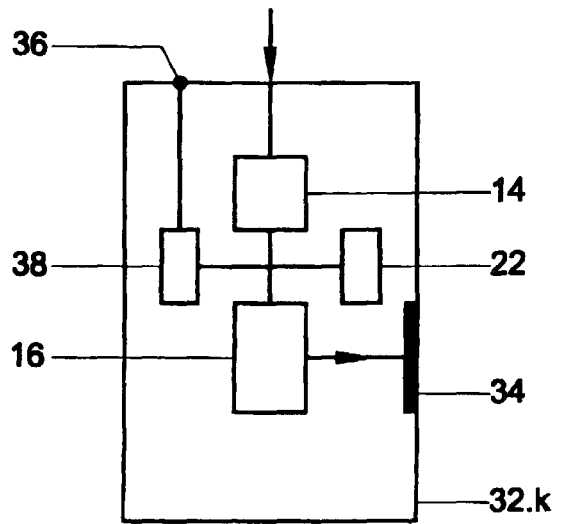


Fig. 2b

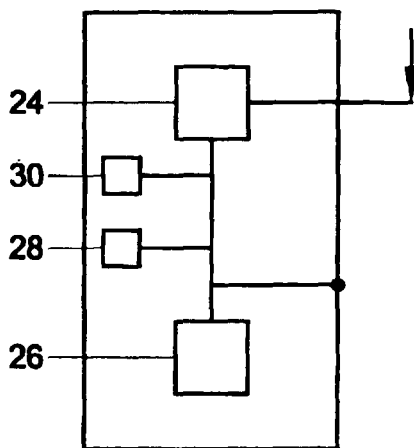


Fig. 2c

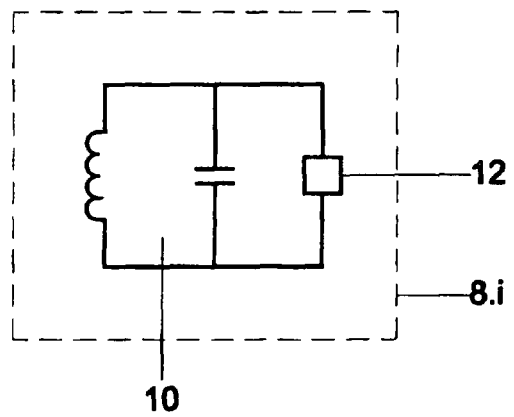


Fig. 2d



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 00 20 2655

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.C1.7)
A	WO 85 01582 A (BI INC) 11 April 1985 (1985-04-11) * abstract; claims; figures * * page 4, line 16 - page 5, line 10 * ---	1-3, 13-19	G07C1/10 G07C9/00
A	US 5 294 229 A (HARTZELL JONATHAN ET AL) 15 March 1994 (1994-03-15) * abstract; claims; figures * ---	1-3, 15-17	
A	PATENT ABSTRACTS OF JAPAN vol. 1999, no. 03, 31 March 1999 (1999-03-31) & JP 10 320473 A (TOYO COMMUN EQUIP CO LTD), 4 December 1998 (1998-12-04) * abstract; figures * ---	1, 15	
A	PATENT ABSTRACTS OF JAPAN vol. 1997, no. 12, 25 December 1997 (1997-12-25) & JP 09 212547 A (TOSHIBA CORP), 15 August 1997 (1997-08-15) * abstract; figures * ---	1, 15	
A	FR 2 740 580 A (MODESTI GUY) 30 April 1997 (1997-04-30) * abstract; claims; figures * * page 1, line 19 - page 4, line 18 * * page 7, line 23 - page 8, line 31 * ---	1, 15	
A	WO 94 08410 A (GURYEL ALI) 14 April 1994 (1994-04-14) * abstract; claims; figures * ---	1, 15	
A	DE 197 21 409 A (HKS SYSTEMS GMBH) 3 December 1998 (1998-12-03) ---		
A	FR 2 683 930 A (TWING FRANCE) 21 May 1993 (1993-05-21) -----		
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 9 October 2000	Examiner Meyl, D
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document	

EPO FORM 1503 03/82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 20 2655

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

09-10-2000

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 8501582 A	11-04-1985	US 4549264 A	22-10-1985
		AU 585488 B	22-06-1989
		AU 3509584 A	23-04-1985
		CA 1214875 A	02-12-1986
		EP 0172833 A	05-03-1986
		JP 61500284 T	20-02-1986
		US 4658357 A	14-04-1987
US 5294229 A	15-03-1994	NONE	
JP 10320473 A	04-12-1998	NONE	
JP 09212547 A	15-08-1997	NONE	
FR 2740580 A	30-04-1997	NONE	
WO 9408410 A	14-04-1994	AT 179561 T	15-05-1999
		AU 691473 B	21-05-1998
		AU 5117393 A	26-04-1994
		CA 2146116 A	14-04-1994
		DE 69324698 D	02-06-1999
		DE 69324698 T	09-09-1999
		DE 664061 T	10-10-1996
		EP 0664061 A	26-07-1995
		US 5956696 A	21-09-1999
DE 19721409 A	03-12-1998	NONE	
FR 2683930 A	21-05-1993	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82