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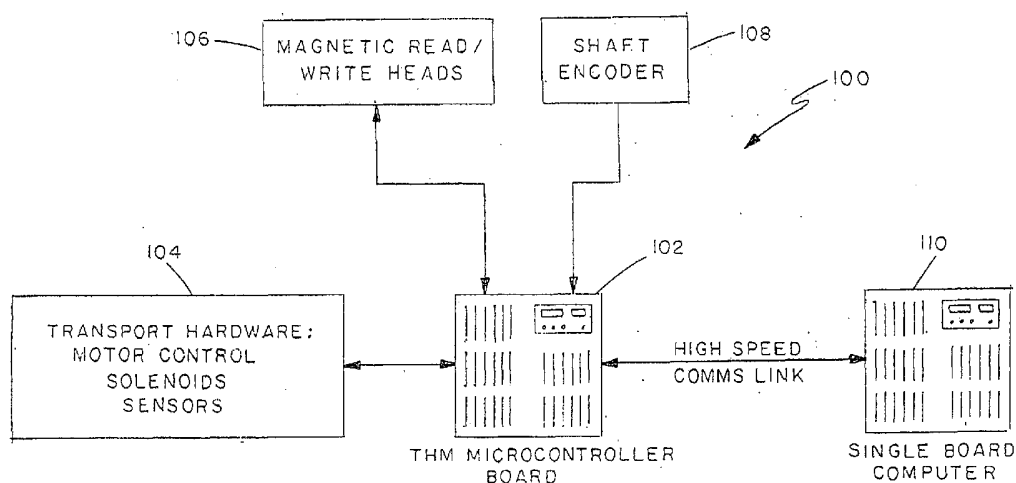
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(54) Title: DISTRIBUTED ARCHITECTURE FOR MAGNETIC FARE CARD PROCESSING



(57) Abstract: A process for encoding and decoding data on the magnetic stripe of a card at any bit density is provided. Data is read from the magnetic stripe of a card and transmitted to a single board computer (110). The single board computer (110) receives the data and determines if the bit density of the card is supported by the computer. If the bit density is supported, the data is sent to a demodulator object (204, 206) to be demodulated and converted to a data stream of ASCII characters. The data stream is then decoded, unpacked and sent to a ticket validator (218) to check the validity of the data. If the bit density is not supported by the computer (110), a demodulator object supporting the bit density can be instantiated.



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INTERNATIONAL SEARCH REPORT

International Application No

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G06K7/08 G06K7/016 G11B20/10 G11B20/12 G11B20/14
G11B20/16

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G06K G11B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 565 759 A (IBM) 20 October 1993 (1993-10-20)	1-5,8, 10-15, 18-27
Y	page 2, line 40 -page 2, line 47 page 5, line 12 -page 9, line 14 claim 11; figures 9,12 ---	6,7,16, 17
Y	US 4 141 044 A (KISTNER JEROME L ET AL) 20 February 1979 (1979-02-20) column 7, line 15 -column 7, line 48 ---	6,7,16, 17
A	US 5 455 408 A (URATA HIDEO ET AL) 3 October 1995 (1995-10-03) column 2, line 41 -column 4, line 61 column 6, line 26 -column 13, line 33 --- -/--	1-36

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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G document member of the same patent family

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 441 280 A (IBM) 14 August 1991 (1991-08-14) page 7, line 28 -page 13, line 25 ----	1-36
A	US 6 049 478 A (BELL JACOB L ET AL) 11 April 2000 (2000-04-11) column 2, line 54 -column 5, line 2 ----	1-36
A	PATENT ABSTRACTS OF JAPAN vol. 012, no. 380 (P-769), 12 October 1988 (1988-10-12) & JP 63 126080 A (FUJITSU LTD), 30 May 1988 (1988-05-30) abstract -----	1,4,23, 27

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 02/26793

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0565759	A	20-10-1993	SG 42858 A1	17-10-1997
			EP 0565759 A1	20-10-1993
			BR 9301339 A	19-10-1993
			CA 2087769 A1	16-10-1993
			CN 1080425 A ,B	05-01-1994
			DE 69222412 D1	30-10-1997
			DE 69222412 T2	26-03-1998
			JP 2752874 B2	18-05-1998
			JP 6005006 A	14-01-1994
			KR 9704683 B1	02-04-1997
			US 5434400 A	18-07-1995
US 4141044	A	20-02-1979	NONE	
US 5455408	A	03-10-1995	JP 2824323 B2	11-11-1998
			JP 4116785 A	17-04-1992
			JP 2846087 B2	13-01-1999
			JP 4116786 A	17-04-1992
			JP 4265568 A	21-09-1992
			AU 655353 B2	15-12-1994
			AU 3533693 A	24-06-1993
			AU 5198293 A	17-02-1994
			AU 646073 B2	03-02-1994
			AU 8350391 A	12-03-1992
			FR 2666674 A1	13-03-1992
			FR 2673737 A1	11-09-1992
			FR 2673741 A1	11-09-1992
			FR 2673742 A1	11-09-1992
			GB 2247764 A ,B	11-03-1992
			GB 2276262 A ,B	21-09-1994
			GB 2276263 A ,B	21-09-1994
			HK 12397 A	14-02-1997
			HK 12497 A	14-02-1997
			HK 15697 A	13-02-1997
			KR 9711124 B1	07-07-1997
			US 5274218 A	28-12-1993
EP 0441280	A	14-08-1991	US 5168275 A	01-12-1992
			BR 9100514 A	29-10-1991
			CA 2032414 C	12-09-1995
			CA 2032414 A1	08-08-1991
			EP 0441280 A1	14-08-1991
			JP 2584132 B2	19-02-1997
			JP 4348488 A	03-12-1992
			JP 2846847 B2	13-01-1999
			JP 8273306 A	18-10-1996
			JP 2915334 B2	05-07-1999
			JP 8255211 A	01-10-1996
			US 5379037 A	03-01-1995
			US 5298897 A	29-03-1994
US 6049478	A	11-04-2000	EP 1033670 A2	06-09-2000
			JP 2000293943 A	20-10-2000
JP 63126080	A	30-05-1988	NONE	