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(11) **EP 1 655 712 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
02.11.2006 Bulletin 2006/44

(51) Int Cl.:
G09G 3/00 (2006.01) **G06F 3/14** (2006.01)
G09F 9/33 (2006.01) **G09F 13/22** (2006.01)

(43) Date of publication A2:
10.05.2006 Bulletin 2006/19

(21) Application number: **05256403.6**

(22) Date of filing: **14.10.2005**

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI
SK TR**
Designated Extension States:
AL BA HR MK YU

(30) Priority: **14.10.2004 US 965127**
14.10.2004 US 965133

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(54) **Flexible pixel string hardware and method cross references to related applications**

(57) A graphical display station of arbitrary shape such as channel letters or other shaped structures is populated with pixels which are components of flexible pixel strings which can be arranged to fit the arbitrary shape (s). The flexible pixel strings provide for straightforward and cost effective fabrication of channel letter or other shaped displays. The invention also includes pixel units which comprise lighting elements together with such control circuits as are needed to properly drive the lighting elements to form a graphical image. Addressing of the particular pixels is provided to accommodate the arbitrary arrangement of pixels of the flexible pixel strings. Meth-

ods of fabricating a channel letter display are also disclosed. The present invention also relates to image displays and signage, and more particularly, to displays of custom or arbitrary shape. Such shaped displays include channel letter displays, logo or design displays, curved or round displays, or other arbitrary shaped or unusual aspect ratio displays. The present invention further relates to software for transforming image data from a multidimensional array corresponding to a physical rectangular grid to a multidimensional array corresponding to a physical arbitrary shape.

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EUROPEAN SEARCH REPORT

Application Number
EP 05 25 6403

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X A	US 2003/057886 A1 (LYS IHOR A ET AL) 27 March 2003 (2003-03-27) * abstract; figure 1 * * paragraphs [0128], [0139], [0144], [0149]; figures 15-17 * -----	1-8,10, 11 12	INV. G09G3/00 G06F3/14 G09F9/33
X	US 2003/031032 A1 (WU CHEN H ET AL) 13 February 2003 (2003-02-13) * abstract; figures 3,4 * -----	1,2,4-6, 10-12	ADD. G09F13/22
X A	WO 03/060857 A (ZHANG, JINMING) 24 July 2003 (2003-07-24) * abstract * & AU 2003 203 330 A1 (ZHANG, JINMING) 30 July 2003 (2003-07-30) -----	1,4 7	
			TECHNICAL FIELDS SEARCHED (IPC)
			G09F G09G F21S
<div style="border: 1px solid black; padding: 5px;"> <p>The present search report has been drawn up for all claims</p> </div>			
Place of search		Date of completion of the search	Examiner
The Hague		12 June 2006	Verhoof, Paul
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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</p>			

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EPO FORM 1503 03.82 (P04C01)

**CLAIMS INCURRING FEES**

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:
1-8, 10-12



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**LACK OF UNITY OF INVENTION
SHEET B**

Application Number

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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-8,10-12

graphical display with flexibly connected pixels

2. claims: 9, 14-16

transformation of rectangular to non-rectangular array

3. claim: 13

addressing of pixel string

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

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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
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12-06-2006

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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US 2003031032 A1	13-02-2003	NONE	
WO 03060857 A	24-07-2003	AU 2003203330 A1 CN 1392524 A	30-07-2003 22-01-2003
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