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(54) **Speech synthesis using concatenation of speech waveforms**

(57) A high quality speech synthesizer in various
embodiments concatenates speech waveforms refer-
enced by a large speech database. Speech quality is
further improved by speech unit selection and concate-
nation smoothing.

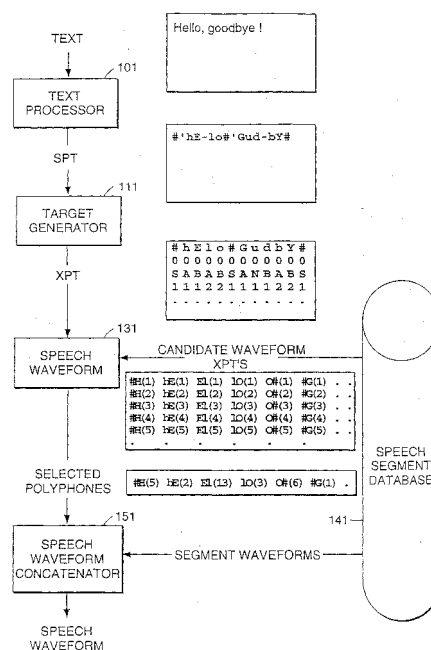


FIG. 1



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EUROPEAN SEARCH REPORT

Application Number
EP 04 07 7723

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)
X	BANGA E R ET AL: "SHAPE-INVARIANT PITCH-SYNCHRONOUS TEXT-TO-SPEECH CONVERSION" PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON ACOUSTICS, SPEECH, AND SIGNAL PROCESSING (ICASSP),US,NEW YORK, IEEE, 1995, pages 656-659, XP000658079 ISBN: 0-7803-2432-3	1-4,7	G10L13/06
Y	-----	5,6	
Y	EP 0 608 833 A (MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD; MATSUSHITA ELECTRIC IND CO LT) 3 August 1994 (1994-08-03) * abstract * * page 6, lines 4-14 *	5,6	
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E	----- US 2002/178006 A1 (SUZUKI HIDEO ET AL) 28 November 2002 (2002-11-28) * abstract; figures 2a-c,3a-c *	1-3	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7) G10L
5	Place of search The Hague	Date of completion of the search 16 February 2005	Examiner Quélavoine, R
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)



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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:



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**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
EP 04 07 7723

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: 1-13

waveforms sequence selection algorithm with node and
transition scoring

2. claims: 14-22

trailing and leading waveform edges concatenation algorithm

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

EP 04 07 7723

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.

16-02-2005

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EPO FORM P0459

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