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**Drukin**

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(54) **NATURAL LANGUAGE FOR  
PROGRAMMING A SPECIALIZED  
COMPUTING SYSTEM**

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(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 560 days.

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(57) **ABSTRACT**

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(52) **U.S. Cl.** ..... **707/10; 707/100; 707/101;**  
707/102  
(58) **Field of Classification Search** ..... **707/200,**  
707/100, 101, 10; 717/172–177  
See application file for complete search history.

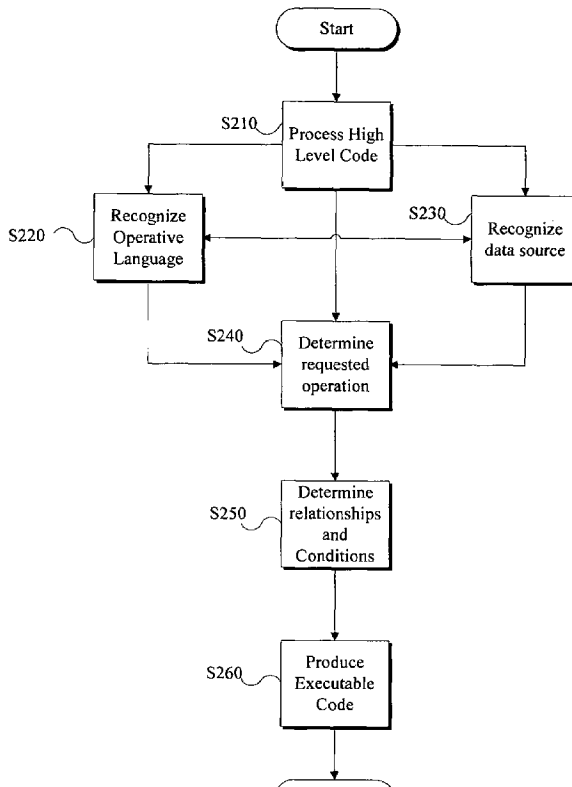
A method for programming a mobile communication device based on a high-level code comprising operative language is provided. The method comprises parsing the high-level code for keywords to recognize the operative language; determining at least one operation associated with the operative language; determining whether high-level code comprises keywords defining one or more relationships and conditions corresponding to the operative language; and producing an executable code that can be executed by a microcontroller of the mobile communication device to perform the respective operation associated with the operative language, wherein the high-level code comprises at least one sentence formatted in accordance with a first context.

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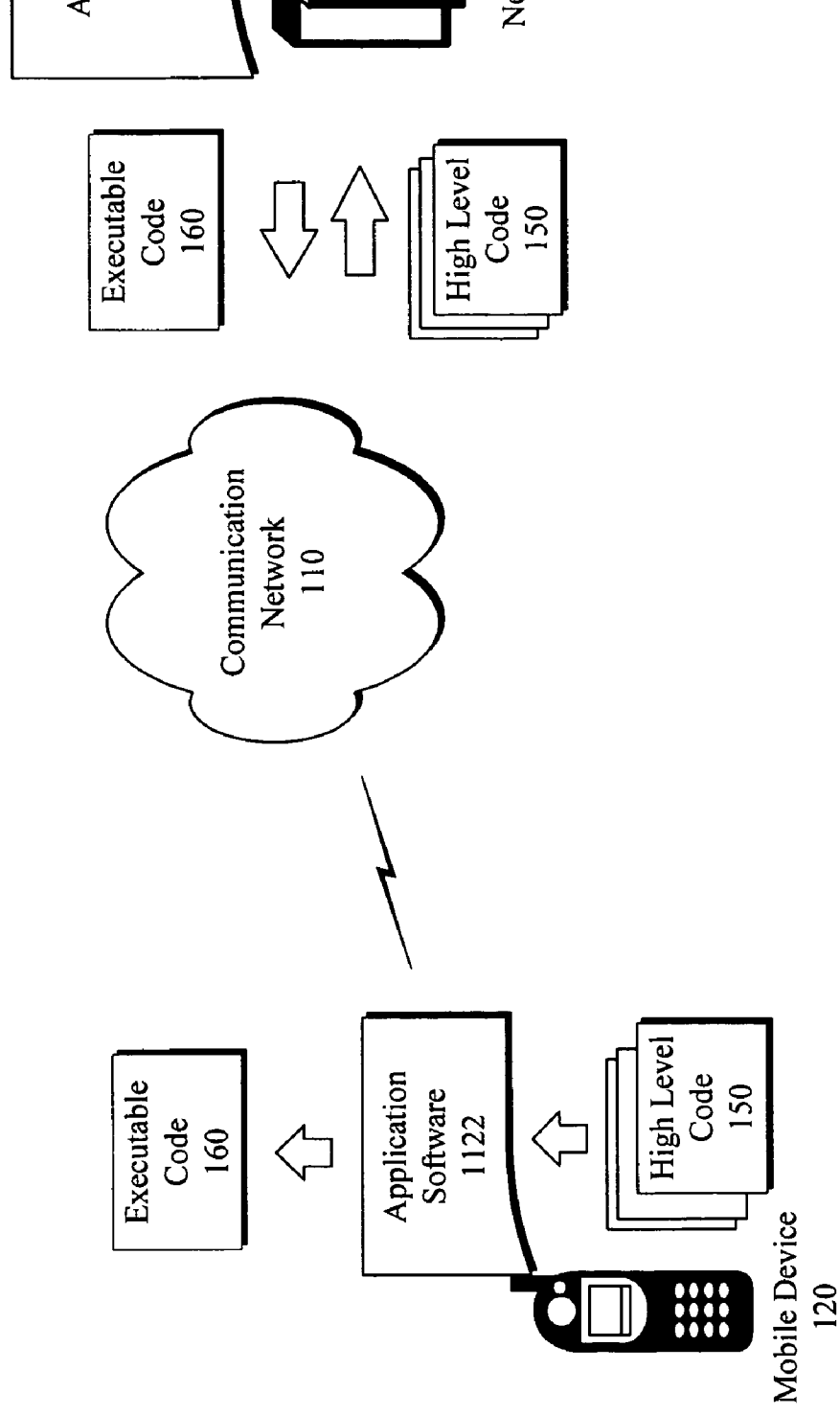
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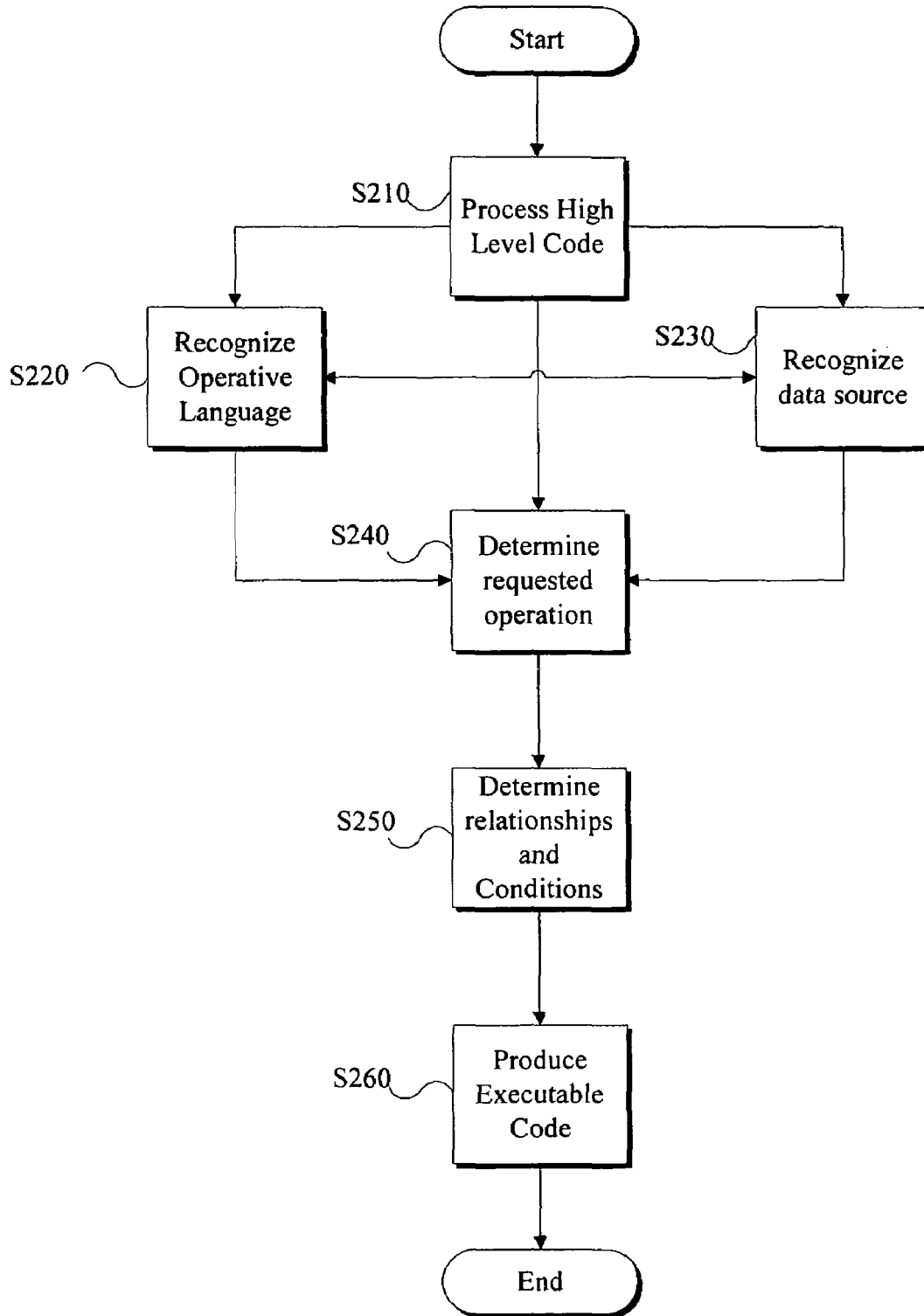
**10 Claims, 3 Drawing Sheets**



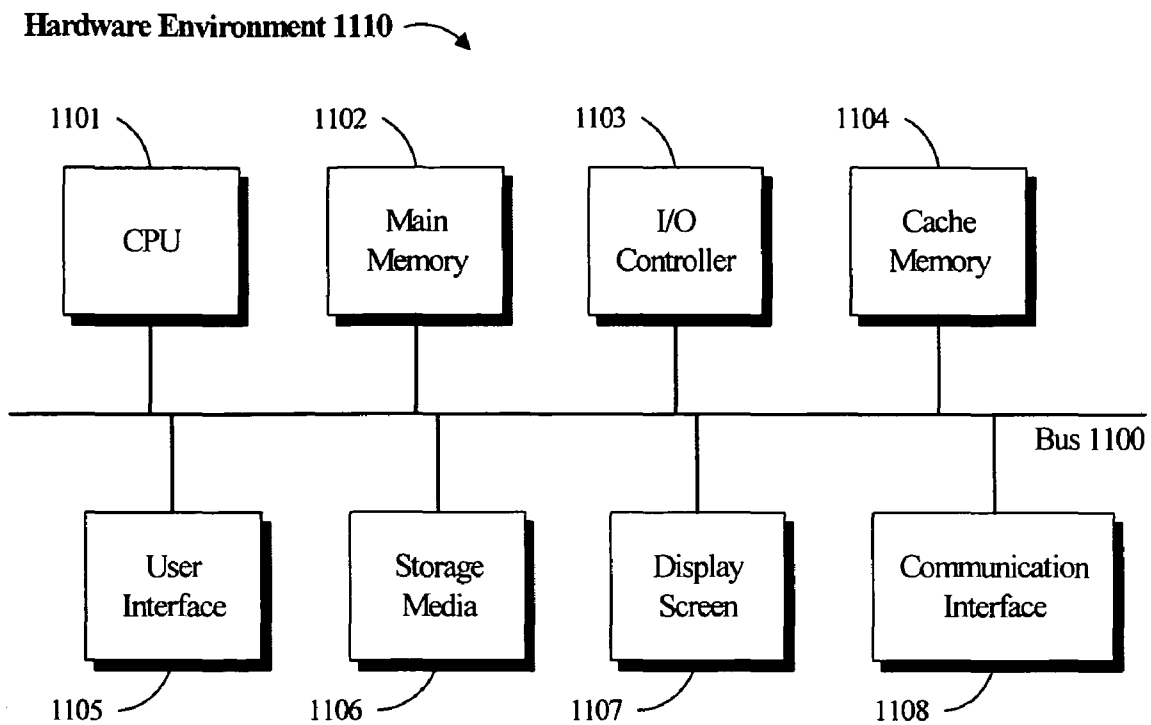
**MICROSOFT CORP. ET AL.**  
**EXHIBIT 1001**



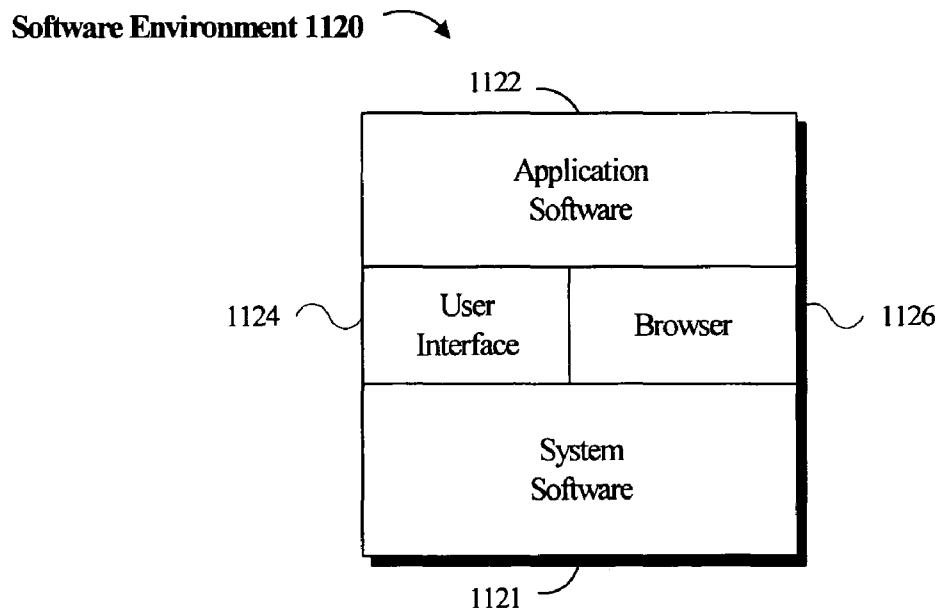
**FIG. 1**



**FIG. 2**



**FIG. 3A**



**FIG. 3B**

NATURAL LANGUAGE FOR PROGRAMMING A SPECIALIZED COMPUTING SYSTEM

BACKGROUND

1. Field of Invention

The present invention relates generally to specialized computing systems and, more particularly, to a system and method for programming a mobile communication device using a high-level natural language.

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3. Related Art

Computing systems continue to dramatically enhance our quality of life. Many specialized computing systems, such as mobile communication devices (e.g., cellular phones) and data organizers (e.g., personal digital assistants (PDAs)) are particularly popular these days. The technically savvy consumers can operate these specialized devices to perform many operational features for which the devices are configured.

For example, some cellular phones have special features that allow a consumer to program the phone to produce a special tone, if a call is received from a designated phone number (i.e., audio caller identification). Other programming features may include voice-activated dialing, voice mail management, or other functions that may be configured in accordance with occurrence of particular conditions and events.

Unfortunately for the less technically inclined consumer, most of said operational features are hardly usable, because the consumer either does not possess the skill or cannot learn the requisite steps to properly program the device to perform various functions. Generally, most consumers find it tedious to program the device to perform the special features, and therefore forgo using said features altogether.

Thus, a more natural method for programming specialized computing systems is desirable to promote use and enhance the user's level of enjoyment.

SUMMARY

The present disclosure is directed to a system and corresponding methods that facilitate programming a mobile communication device or other specialized computing device using a natural language.

For purposes of summarizing, certain aspects, advantages, and novel features of the invention have been described herein. It is to be understood that not necessarily all such advantages may be achieved in accordance with any one particular embodiment of the invention. Thus, the invention may be embodied or carried out in a manner that achieves or optimizes one advantage or group of advantages as taught

In one embodiment, a method for programming a mobile communication device based on a high-level code comprising operative language comprises parsing the high-level code for keywords to recognize the operative language; determining at least one operation associated with the operative language; determining whether high-level code comprises keywords defining one or more relationships and conditions corresponding to the operative language; and producing an executable code that can be executed by a microcontroller of the mobile communication device to perform the respective operation associated with the operative language, wherein the high-level code comprises at least one sentence formatted in accordance with a first context.

In one embodiment, application software is executed on the mobile communication device performs the parsing and determining steps, when the high-level code comprises a first level of complexity. In another embodiment, application software executed on a network server connected to the mobile communication device performs the parsing and determining steps, when the high-level code comprises a second level of complexity. In yet another embodiment, application software executed on a distributed environment, comprising the mobile communication device and a network server connected to the mobile communication device, performs the parsing and determining steps.

The high-level code is transmitted to the network server to produce the executable code after the network server performs the parsing and determining steps. The executable code is transmitted to the mobile communication device to be executed by the microcontroller of the mobile communication device. In one embodiment, at least one sentence comprises one or more keywords and the first context is a natural language context. The high-level code may be contained in a script. The script is written by a user of the mobile communication device.

In accordance with another embodiment, a system for programming a mobile communication device based on a high-level code comprising operative language is provided. The system comprises means for parsing the high-level code for keywords to recognize the operative language; means for determining at least one operation associated with the operative language; means for determining whether high-level code comprises keywords defining one or more relationships and conditions corresponding to the operative language; and means for producing an executable code that can be executed by a microcontroller of the mobile communication device to perform the respective operation associated with the operative language, wherein the high-level code comprises at least one sentence formatted in accordance with a first context.

These and other embodiments of the present invention will also become readily apparent to those skilled in the art from the following detailed description of the embodiments having reference to the attached figures, the invention not being limited to any particular embodiments disclosed.

BRIEF DESCRIPTION OF THE DRAWINGS

Embodiments of the present invention are understood by referring to the figures in the attached drawings, as provided below.

FIG. 1 illustrates an exemplary communications environment, in accordance with one or more embodiments of the invention;

FIG. 2 is a flow diagram of a method for providing a natural

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