

of input. For example, handwriting input can be digitized with or without pre-processing on device **30**. Like the speech data, this form of input can be transmitted to the recognition server **204** for recognition wherein the recognition results are returned to at least one of the device **30** and/or web server **202**. Likewise, DTMF data, gesture data and visual data can be processed similarly. Depending on the form of input, device **30** (and the other forms of clients discussed below) would include necessary hardware such as a camera for visual input.

[**0028**] In addition to the portable or mobile computing devices described above, it should also be understood that the present invention can be used with numerous other computing devices such as a general desktop computer. For instance, the present invention will allow a user with limited physical abilities to input or enter text into a computer or other computing device when other conventional input devices, such as a full alpha-numeric keyboard, are too difficult to operate.

[**0029**] The invention is also operational with numerous other general purpose or special purpose computing systems, environments or configurations. Examples of well known computing systems, environments, and/or configurations that may be suitable for use with the invention include, but are not limited to, wireless or cellular telephones, regular telephones (without any screen), personal computers, server computers, hand-held or laptop devices, multiprocessor systems, microprocessor-based systems, set top boxes, programmable consumer electronics, network PCs, minicomputers, mainframe computers, distributed computing environments that include any of the above systems or devices, and the like.

[**0030**] The following is a brief description of a general purpose computer **120** illustrated in **FIG. 3**. However, the computer **120** is again only one example of a suitable computing environment and is not intended to suggest any limitation as to the scope of use or functionality of the invention. Neither should the computer **120** be interpreted as having any dependency or requirement relating to any one or combination of components illustrated therein.

[**0031**] The invention may be described in the general context of computer-executable instructions, such as program modules, being executed by a computer. Generally, program modules include routines, programs, objects, components, data structures, etc. that perform particular tasks or implement particular abstract data types. The invention may also be practiced in distributed computing environments where tasks are performed by remote processing devices that are linked through a communications network. In a distributed computing environment, program modules may be located in both local and remote computer storage media including memory storage devices. Tasks performed by the programs and modules are described below and with the aid of figures. Those skilled in the art can implement the description and figures as processor executable instructions, which can be written on any form of a computer readable medium.

[**0032**] With reference to **FIG. 3**, components of computer **120** may include, but are not limited to, a processing unit **140**, a system memory **150**, and a system bus **141** that couples various system components including the system memory to the processing unit **140**. The system bus **141** may

be any of several types of bus structures including a memory bus or memory controller, a peripheral bus, and a local bus using any of a variety of bus architectures. By way of example, and not limitation, such architectures include Industry Standard Architecture (ISA) bus, Universal Serial Bus (USB), Micro Channel Architecture (MCA) bus, Enhanced ISA (EISA) bus, Video Electronics Standards Association (VESA) local bus, and Peripheral Component Interconnect (PCI) bus also known as Mezzanine bus. Computer **120** typically includes a variety of computer readable mediums. Computer readable mediums can be any available media that can be accessed by computer **120** and includes both volatile and nonvolatile media, removable and non-removable media. By way of example, and not limitation, computer readable mediums may comprise computer storage media and communication media. Computer storage media includes both volatile and nonvolatile, removable and non-removable media implemented in any method or technology for storage of information such as computer readable instructions, data structures, program modules or other data. Computer storage media includes, but is not limited to, RAM, ROM, EEPROM, flash memory or other memory technology, CD-ROM, digital versatile disks (DVD) or other optical disk storage, magnetic cassettes, magnetic tape, magnetic disk storage or other magnetic storage devices, or any other medium which can be used to store the desired information and which can be accessed by computer **120**.

[**0033**] Communication media typically embodies computer readable instructions, data structures, program modules or other data in a modulated data signal such as a carrier wave or other transport mechanism and includes any information delivery media. The term "modulated data signal" means a signal that has one or more of its characteristics set or changed in such a manner as to encode information in the signal. By way of example, and not limitation, communication media includes wired media such as a wired network or direct-wired connection, and wireless media such as acoustic, FR, infrared and other wireless media. Combinations of any of the above should also be included within the scope of computer readable media.

[**0034**] The system memory **150** includes computer storage media in the form of volatile and/or nonvolatile memory such as read only memory (ROM) **151** and random access memory (RAM) **152**. A basic input/output system **153** (BIOS), containing the basic routines that help to transfer information between elements within computer **120**, such as during start-up, is typically stored in ROM **151**. RAM **152** typically contains data and/or program modules that are immediately accessible to and/or presently being operated on by processing unit **140**. By way of example, and not limitation, **FIG. 3** illustrates operating system **54**, application programs **155**, other program modules **156**, and program data **157**.

[**0035**] The computer **120** may also include other removable/non-removable volatile/nonvolatile computer storage media. By way of example only, **FIG. 3** illustrates a hard disk drive **161** that reads from or writes to non-removable, nonvolatile magnetic media, a magnetic disk drive **171** that reads from or writes to a removable, nonvolatile magnetic disk **172**, and an optical disk drive **175** that reads from or writes to a removable, nonvolatile optical disk **176** such as a CD ROM or other optical media. Other removable/non-removable, volatile/nonvolatile computer storage media that