Subsystem **540** is configured the same as subsystems **40** and **440** and is operable to perform procedure **120**, except that processing of subsystem **540** is adapted to account for the vertical movement of array **436** instead of rotational movement. System **520** can further include a communication subsystem (not shown) the same as subsystem **60** to remotely communicate with subsystem **440**. Like previously described embodiments, system **520** is used to determine measurement, image, animation, topographical, and/or three-dimensional volume information about body B.

Compared to array **36**, a larger number of transmitting/receiving elements is typically needed for array **536** to have a comparable resolution to previously described embodiments. In one comparison, between 500 and 2000 transmitting/receiving elements would be desired for array **536** versus 200 to 600 for array **36** for comparable resolution, depending on the frequency band selected. However, under appropriate conditions, scanning booth **530** can perform a scan substantially faster than booth **30**. In one nonlimiting example, the scan time for booth **30** is in a range of about 10 to 20 seconds versus about 2 to 5 seconds for scanning booth **530**.

In a further embodiment of the present invention, the body undergoing interrogation and the array both move. In one such example, array elements are arranged in an arc segment that can move vertically while the body rotates. In another example, both the array and body rotate. The processing of interrogation data can be adjusted for these different motion patterns using techniques known to those skilled in the art.

In another embodiment, the interrogation and corresponding topographic representation do not correspond to the full circumference of the body undergoing interrogation. Instead, the segment of interest can be less than 360 degrees. For such embodiments, the topographic representation can still be determined by combining data corresponding to two or more different cylindrical arc segment apertures. In a clothing sizing application, the inseam, sleeve, and/or torso length measurements can be made using less than a full 360 degree volumetric representation. Alternative or additionally, less than the full height, width, and/or length of the body may be scanned in alternative embodiments. For such alternatives, the array size and/or scanning pattern can be correspondingly adjusted. In other applications, views and/or dimensions of interest can also be based on data that accounts for less than all the surfaces of the object under investigation.

In still other embodiments, a topographic representation provided in accordance with the present invention can be utilized for different purposes in addition or as an alternative to mensuration. In one example, the topographic representation can be used to detect concealed items. For one form of this application, the scanning booth platform can be comprised of a material, such as an organic thermoplastic or thermoset polymer, that permits the interrogation in or beneath the soles of shoes where weapons can sometimes be hidden. In another example, a three-dimensional likeness is generated from the topographic representation to perform further analysis relating to the corresponding person or object.

In one further embodiment, a topographical representation is obtained in accordance with procedure **120** and/or system **20**, **420**, or **520** to identify an individual. One form of this embodiment includes a technique to control access to a restricted area, comprising: scanning an individual attempting to gain access to the restricted area; determining a topographical representation of the individual from the scan; comparing one or more aspects of this representation, such as one or more relative body dimensions, to data stored for those permitted access to the restricted area; and allowing access to the restricted area by the individual if there is a match within a desired degree of error. The determination of a match can be used to activate a portal, gate, or other access control device. In one variation of this embodiment, one or more other biometrics (such as a fingerprint, palm print, retina image, vocal pattern, etc.) of the individual are compared in addition to the topographical representation related data as part of the determination of whether to allow access. The body dimension(s) used for identification can be changed for each access to reduce the likelihood that the access control measures will be circumvented. Such embodiments can be provided as a method, apparatus, system, and/or device.

In still a further embodiment, topographical representation information can be used for profiling. One nonlimiting example includes: scanning an individual to obtain topographical information; comparing this information to a database of topographical information for known terrorists or other undesirable parties; and taking further action to screen access of the individual to a sensitive area if the comparison indicates an unacceptable degree of similarity. This action can be taken irrespective of whether a concealed object, such as a weapon, is indicated by the scan. Various forms of this embodiment include methods, systems, apparatus and/or devices.

Another embodiment directed to an identification technique includes: scanning passengers of a commercial transportation vehicle, such as a commercial aircraft, for identifying topographical information; and in the event the vehicle is later involved in an accident resulting in injury or death, identifying one or more passenger bodies or body parts using the information. If a seating arrangement is known for the vehicle, the information for each passenger can be correlated to this arrangement to assist with identification. The scanning can be performed with the nonintrusive interrogation methods of the present invention as part of the vehicle boarding process. Such embodiments can be provided in the form of a method, apparatus, system, and/or device.

For yet a further embodiment, scanned topographical information regarding an individual is stored in a portable storage device, such as a "smart card." This device can be used for identification purposes and/or to customize equipment to the individual. One nonlimiting example directed to customization includes establishing an interface between the device and a vehicle and automatically adjusting a vehicle seat or other vehicle equipment to the individual's body dimensions and/or shape based on the information. This embodiment can be in the form of a method, apparatus, system, and/or device.

Still other embodiments of the present invention use procedure **120** and/or one or more of systems **20**, **420**, or **520** to provide at least one topographical representation for use in a virtual space or computer-defined domain. One such embodiment includes: scanning an individual to generate a corresponding topographical representation; generating a three-dimensional visualization of the individual with a computer based on the representation; and incorporating the visualization into a sequence of computer-generated images to provide a likeness of the individual. This likeness can be animated in a manner consistent with the images. The sequence of images can be provided in the context of a game, a virtual reality process, and/or a movie, to name just a few examples. Such embodiments can be provided in the form of method, apparatus, system, and/or device.