Patent Search

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Abstract:

The system for detecting and 3D scanning of a movable object amidst the multiple objects in the field of vision for generating a three dimensional printed model com hexagonal skeletal arrangement made up of removably fixed PVC pipes and T-joints assembled combined together by the 90 degree corner pieces for a height of at le wherein the space enclosed by the said hexagonal structure accommodates the object to be scanned; plurality of cameras for travelling on the said structure for dete red, green and blue colour components, body shape with contour boundaries and the facial features of the object enclosed by the said hexagonal skeletal arrangeme depth sensors wherein each of the sensor comprising monochrome CMOS sensors; infrared projectors for transmitting and receiving the near infrared light towards for detecting its distance and creating the 3D image of the entire region enclosed by the said hexagonal skeletal structure; a hybrid bipolar stepper motor for controll movement of the said camera, sensor and depth sensor combination on the pre-determined course; drivers for the said stepper motor to control the speed and dire movement of the stepper motor; arduino uno based micro controller with the microchip ATmega328P for processing the multiple signals received from the plurality c power supply with its adapter including AC/DC converter for powering the devices and finally a 3D printing raw material on vegetable based plastic for enabling the 3 the scanned objects.

Complete Specification

Field of the Invention

The present invention concerns a system, and corresponding method, for scanning an object at real time enclosed in plane and more particularly the invention rela methods and systems for projection and capture of white light based optical infrared radiation and image capture for purposes of 3D mapping.

Background and Prior art of the Invention

Numerous 3D scanning techniques exist. Some are based on lasers .Lasers have gained a reputation for accuracy; however, care must be taken to use eye-safe lase operating in proximity to humans. Systems are known for 3D geometric acquisition of the shape of an object, for example as disclosed in WO 2005/040850. Howeve geometric information alone is not always sufficient for particular scanning applications, such as Ml colour model acquisition for example for video games and anim films (e.g. scanning and reconstructing a figure for subsequent animation), interactive visualization (e.g. for medical uses or for academic use such as scanning antic for subsequent study), and quality control (e.g. inspecting the surface finish of an object for desired gloss or satin finish, inspecting completeness of paintwork on a object).

Other systems are known for acquiring information on an object via "photometric stereo" (PS), i.e. obtaining spatial information on the properties of the interaction surface of an object with light. Traditionally, three light sources are used which represents a typical minimum setup. However, there are problems and limitations wi a system: for example, depending on the material reflectance model used, the determination of the PS information for the object can be intractable or require an extremely large amount of processing power or time. The range of applicable materials may be very limited, for example objects which exhibit specular reflection ca be correctly acquired. The use of additional light sources and more advanced reflection models can assist, but this increases the hardware requirements and the dif

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