walk to return to his car. If the device happened not to be pointing in the direction of the car, then the electronic mark left near the car would not be visible on the screen. But an on-screen arrow, such as arrow **835**, would indicate to the user which way to rotate the device such that the car (or a 2D or 3D graphical symbol registered with the car) will become visible on the screen. This arrow is not shown once the target (in this case a car) is registered on the display. In this way, arrows can be used to point to any number of items that occur in the synthetic vision database, but are not displayed on the screen at a given time.

[0090] FIG. **9** shows a person using a synthetic vision device to look at an object that is in front of a wall. A close up view of the display of the device is also shown. FIG. **9** is similar to FIG. **8** except that tank **850** is closer to the user **805** than is wall **845**. Distance **955** may be measured directly by a range finder and by subtraction of database distances. In this case the two methods of finding distance will give the same result since the tank is the closest object to the user. The fact that the tank is the closest object is also highlighted to the user by the new fill pattern **930** used to render it on display **815**. In both FIG. **8** and FIG. **9** an information box **840** appears on the display. The information box may show text or graphic symbol information about an object that is being displayed. For example, in FIG. **8** the information box tells the user that the tank's call sign is "CHARLIE 709" and its fuel state is 65%. In FIG. **9** the information box contains the additional information that the tank is 100 meters from the user. The user may select what information he would like to see about any object on the screen or any object off screen but pointed to by an arrow, e.g. arrow **835**, by pressing buttons on the handheld synthetic vision device or by using other standard user input methods.

[0091] It is often useful for a user of a handheld synthetic vision device to be able to change the perspective of the displayed view from an egocentric perspective to an exocentric one. This capability allows the user to "fly around" and see his environment from a bird's eye view or perhaps from an underground perspective. FIG. **10** shows views of a scene from different perspectives as displayed on a synthetic vision device. Views from four different perspectives, labeled "A", "B", "C" and "D", are shown. In this application the user is in the cockpit of an airplane that is flying near an airport.

[0092] View "A" is an egocentric view. It is the view that the user himself sees out the window of the airplane. Of course if the airplane is flying in a cloud the view out the window would be white and featureless. In that case the egocentric view shown by the synthetic vision device would be very valuable as replacement for normal vision. View "B" is an exocentric view from a point behind and above the airplane. In this view the user sees his airplane as well as others that are parked on the airport below. View "C" is an exocentric view from a position behind, above and on the right hand side of the user's airplane. This view is useful if the user wants to look out for traffic coming from the left hand side of his airplane, for example. Finally, View "D" is an exocentric view from very far overhead. This view is also called a "map view" since it is the same perspective as a traditional map. This view is useful for navigation augmented by information about the location of mobile objects as reported from the database. Arrows labeled "A", "B" and "C" in View D show the direction of view for views A, B and C respectively.

[0093] FIG. **11** shows a synthetic vision device used to visualize a direct real world view from a user's actual position. A reticle symbol is used to designate an object in the view. In the figure synthetic vision device **210** is pointed toward a house **225** and a tree **230**. Images **1110** and **1120** of the house and tree respectively appear on screen **215**. Also shown on the screen is a reticle symbol **1130**. The symbol is used to designate an object in the view. In this case a user has designated the door by placing the reticle symbol over the image of the door **1110**. The device **210** remembers where the reticle is based on its three dimensional position coordinates.

[0094] FIG. **12** shows a synthetic vision device used to visualize a direct real world view from a user's actual position. An arrow symbol is used to designate the direction in which the device must be pointed to see the reticle which was visible in the view shown in FIG. **11**. In FIG. **12** the device **210** has been turned to the right compared to the view in FIG. **11**. In FIG. **12** only the image **1120** of the tree **230** appears on screen. The house **225** is off screen to the left because the device is not pointed at it. However, arrow **1210** indicates the direction in which the device must be rotated to bring reticle symbol **1130** into view.

[0095] Reticle symbols which may be attached to three dimensional objects or positions in space and arrows that show where reticles lie when they are off screen offer a powerful methodology for users to mark items of interest and return to them. The reticle symbol may be drawn fairly large to reduce the visual impact of its possible mis-registration. It is sufficient for many users if the reticle provides a guide as to where to look on screen to find an object. Often it is not necessary for the reticle to lie exactly in the "right" place since a human observer can quickly distinguish what the reticle designates.

[0096] As one skilled in the art will readily appreciate from the disclosure of the present invention, processes, machines, manufacture, means, methods, or steps, presently existing or later to be developed that perform substantially the same function or achieve substantially the same result as the corresponding embodiments described herein may be utilized according to the present invention. Accordingly, the appended claims are intended to include within their scope such processes, machines, manufacture, means, methods, or steps.

[0097] While the invention has been described in connection with what are presently considered to be the most practical and preferred embodiments, it is to be understood that the invention is not limited to the disclosed embodiments and alternatives set forth above, but on the contrary is intended to cover various modifications and equivalent arrangements included within the scope of the following claims.

1-16. (canceled)

17. A synthetic vision system comprising:

a video imagery source configured to acquire and supply a real-time actual image;

a synthetic vision database having graphic objects stored therein;

a handheld unit;

a sensor suite housed within the handheld unit, the sensor suite comprising position and attitude sensors for reporting position and attitude data, respectively;

a display housed within the handheld unit and configured to render images of actual or digitally created scenes; and