

lumberjack may be animated to walk onto the hex to cut a tree, thus providing the wood resource to a user. Similarly, city and road objects may be animated with wagons and humans after they are placed onto the hex board elements. Hex elements that represent ports or seas may be animated with ships that move goods from port to port. Animations may trigger behavior in the game, making the game more challenging. For example, a city or port may explode, requiring the user to take action, such as rebuild the city or port. Or a resource may be depleted, which is represented by a woodland hex slowly turning into a meadow hex, and a meadow hex slowly turning into a desert hex that is unproductive. Climate may be simulated, allowing users to play the game under different seasonal circumstances, thus affecting their constraints. For example, during winters, ports may not be in use. This invention allows the functionality of pc-based or online computer games known in the art, such as Simcity, The Sims, World of Warcraft, or Everquest to be merged with that of physical board game elements.

Example 3

3D Flexible Display Objects

[0083] In this non-limiting embodiment, the invention is used to provide display on any three dimensional object, such that it allows animation or graphics rendering on said three dimensional object. For example, the invention may be used to implement a rapid prototyping environment for the design of electronic appliance user interfaces, such as, for example, but not limited to, the Apple iPod. One element of such embodiment is a three dimensional model of the appliance, made out of card board, Styrofoam, or the like, and either tracked and projected upon using the apparatus of this invention or coated with electronic paper, LCD, e-ink, OLED or other forms of thin, or thin-film displays, such that the shapes and curvatures of the appliance are followed. Another flexible display apparatus described in this invention. Rather than setting up the board according to the rules of the game, users need just lay out the flexible display surface acts as a palette on which user interface elements such as displays and dials are displayed. These user interface elements can be selected and picked up by the user by tapping its corresponding location on the palette display. Subsequent tapping on the appliance model places the selected user interface element onto the appliance's flexible display surface. User interface elements may be connected or associated with each other using a pen or finger gesture on the surface of the model. For example, a dial user interface element may be connected to a movie user interface element on the model, such that said dial, when activated, causes a scroll through said movie. After organizing elements on the surface, subsequent tapping of the user onto the model may actuate functionality of the appliance, for example, a play button may cause the device to produce sound or play a video on its movie user interface element. This allows designers to easily experiment with various interaction styles and layout of interaction elements such as buttons and menus on the appliance design prior to manufacturing. In another embodiment, the above model is a three-dimensional architectural model that represents some building design. Here, each element of the architectural model consists of a flexible display surface. For example, one flexible display surface may be shaped as a wall element, while another flexible display surface may be

shaped as a roof element that are physically placed together to form the larger architectural model. Another flexible display surface acts as a palette on which the user can select colors and materials. These can be pasted onto the flexible display elements of the architectural model using any of the discussed interaction techniques. Once pasted, said elements of the architectural model reflect and simulate materials or colors to be used in construction of the real building. As per Example 2, the flexible display architectural model can be animated such that living or physical conditions such as seasons or wear and tear can be simulated. In another embodiment, the flexible display model represents a product packaging. Here, the palette containing various graphical elements that can be placed on the product packaging, for example, to determine the positioning of typographical elements on the product. By extension of this example, product packaging may itself contain or consist of one or multiple flexible display surfaces, such that the product packaging can be animated or used to reflect some computer functionality, including but not limited to online content, messages, RSS feeds, animations, TV shows, newscasts, games and the like. As a non-limiting example, users may tap the surface of a soft drink or food container with an embedded flexible display surface to play a commercial advertisement or TV show on said container, or to check electronic messages. Users may rotate the container to scroll through content on its display, or use a rub gesture to scroll through content. In another embodiment, the product packaging is itself used as a pointing device, that allows users to control a remote computer system.

Example 4

Flexible Textile Display

[0084] In this non-limiting example the flexible display surface consists of electronic textile displays such as but not limited to OLED textile displays known in the art, or white textiles that are tracked and projected upon using the apparatus of this invention. These textile displays may be worn by a human, and may contain interactive elements such as buttons, as per Example 3. In one embodiment of said flexible display fabric, the textile is worn by a human and the display is used by a fashion designer to rapidly prototype the look of various textures, colors or patterns of fabric on the design, in order to select said print for a dress or garment made out of real fabric. In another embodiment, said textures on said flexible textile displays are permanently worn by the user and constitute the garment. Here, said flexible display garment may display messages that are sent to said garment through electronic means by other users, or that represent advertisements and the like.

[0085] In another embodiment, the flexible textile display is worn by a patient in a hospital, and displays charts and images showing vital statistics, including but not limited to x-ray, ct-scan, or MRI images of said patient. Doctors may interact with user interface elements displayed on said flexible textile display through any of the interaction techniques of this invention and any technique known in prior art. This includes tapping on buttons or menus displayed on said display to select different vital statistics of said patient. In an operating theatre, the flexible textile display is draped on a patient in surgery to show models or images including but not limited to x-ray, ct-scan, MRI or video images of