substantial obstruction; a displacement device **130** that influences the volume of fluid **112** within the fluid vessel **127** to expand and retract at least a portion of the fluid vessel **127**, thereby deforming a particular region **113** of the surface **115**; and an attachment component **220** that couples the sheet to the device **10**. As shown in FIGS. **1***b* and **2**, the fluid vessel **127** is preferably a cavity **125** and the displacement device **130** preferably influences the volume of fluid within the cavity **125** to expand and retract the cavity **125**. The fluid vessel **127** may alternatively be a channel **138** or a combination of a channel **138** and a cavity **125**, as shown in FIG. **4***a*. The user interface enhancement system **100** is preferably one of two preferred embodiments. In a first preferred embodiment, the displacement device **130** is electrically powered. In a second preferred embodiment, the displacement device **130** is manually powered. As shown in FIG. **2**, the user interface enhancement system **100** of the preferred embodiments may also include a native power source **200** that preferably functions to power the user interface enhancement system **100**, a data-link **205** that functions to allow the user interface enhancement system **100** and the device **10** to communicate, and/or a connector **210** that functions to electrically couple the user interface enhancement system **100** to the device **10**. The displacement device **130** and/or the native power source **200** may also be contained within the sheet **102**, but may alternatively be exterior to the sheet **102**. The fluid vessel **127** may also include a second cavity **125***b* that contains a volume of fluid **112** and the displacement device **130** preferably also influences the volume of the fluid within the second cavity **125***b* to expand and retract the second cavity **125***b*, thereby deforming a second particular region **113** of the surface **115**. The displacement device **130** preferably influences the volume of fluid **112** within the second cavity **125***b* independently of the cavity **125**, but may alternatively influence the volumes of fluid **112** within both cavity and second cavity **125** and **125***b* substantially concurrently. Alternatively, the user interface enhancement system **100** may include a second displacement device **130** that functions to influence the volume of fluid **112** within the second cavity **125***b* to expand and retract the second cavity **125***b*, thereby deforming a second particular region **113** of the surface. The second cavity **125***b* is preferably similar or identical to the cavity **125**, but may alternatively be any other suitable type of cavity.

**[0022]** The user interface enhancement system **100** of the preferred embodiments has been specifically designed to be appended to the user interface of an electronic device **10**, more preferably in an electronic device **10** that utilizes a touch sensitive display as the main means to receive user input. This may include, for example, a laptop computer, a tablet computer, a mobile phone, a PDA, a personal navigation device, a remote control, a personal media player, a camera, a trackpad, or a keyboard. The user interface enhancement system **100** may, however, be used as the user interface for any suitable device that interfaces with a user in a tactile and/or visual manner (such as an automotive console, a desktop computer, a television, a radio, a desk phone, a watch, a remote, and a mouse). As shown in FIG. **3**, the surface **115** of the user interface enhancement system **100** preferably remains flat until tactile guidance is to be given to the user in the location of the particular region **113**. The displacement device **130** then preferably expands the cavity **125** to deform the particular region **113** outward, forming a deformation that may be felt by a user, and providing tactile guidance for the user. The expanded particular region **113** preferably also provides tactile feedback to the user when he or she applies force onto the particular region **113** to provide input. Tactile feedback may be in the form of Newton's third law, where an applied force has an equal and opposite reaction force, but may alternatively be any other suitable type of tactile feedback. Alternatively, the displacement device **130** may retract the cavity **135** to deform the particular region **113** inward. However, any other suitable deformation of the particular region **113** may be used. The user input is preferably detected by the touch sensitive display and processed by the device **10**. However, any other suitable arrangement of the user interface enhancement system **100** may be used.

**[0023]** As shown in FIG. **2***b*, the user interface system **100** is preferably placed over a touch sensitive display of a device **10** that displays an image. As described above, the volume of fluid **112** preferably cooperates with the sheet **102** to transmit an image through the sheet **102** without substantial obstruction. Alternatively, the volume of fluid **112** may cooperate with the sheet **102** to transmit an image through the sheet **102** without substantial obstruction only when the fluid vessel **127** is in a particular state, for example, when the fluid vessel **127** is in the retracted state or when the fluid vessel is in the expanded state. Because the deformation of the particular region **113** functions to provide tactile guidance to the user, the user may not need the visual cues from the image to operate the user interface when tactile guidance is present. However, the volume of fluid **112** and the sheet **102** may cooperate to transmit an image through the sheet **102** without substantial obstruction in any other suitable arrangement. Obstruction to image transmission may be defined as any manipulation of the image that provides a visual interruption of the image in reaching the user. Obstruction may include blocking a substantial portion of the image, substantially dimming the image, and/or substantially distorting the image unintelligibly. Manipulations to an image that are preferably not considered obstruction to image transmission may include distortion of the image while allowing the image to be substantially visually intelligible, substantially uniformly tinting the image, and/or substantially uniformly enlarging the image. In a first variation, to decrease distortion of the image, the volume of fluid **112** and the sheet **102** preferably cooperate to allow the light from the display to reach the user's eyes at substantially the same angle from the sheet **102** as directly from the display such an image from the display is seen through the sheet **102** as it would be seen directly from the display. In a second variation, the volume of fluid **112** and sheet **102** may function to substantially uniformly refract light from the display to maintain substantially the same relative proportions between different regions of the image as seen by the user. For example, the volume of fluid **112** and the sheet **102** may cooperatively function to substantially magnify the image from the display of the device **10** thus increasing the size of the image as seen by the user uniformly or increasing the size of one portion of the image more than another portion. In a third variation, the volume of fluid **112** and sheet **102** may cooperate to refract light from different portions of the image differently (i.e., "warp" the image) to increase the magnification of certain portions of the image. For example, the fluid **112** and the sheet **102** may cooperate to provide a fish-eye type magnification to the image to substantially increase visibility of certain portions of the image. In the first, second, and third variations, the volume of fluid **112** and sheet **102** are preferably each of substantially the same index of refraction to maintain substantially one refraction