defined fluid vessel **127**. In other words, if the first and second set of conductors can distinguish between a first user input and a second user input that are at a minimum distance of X apart, a particular region **113** is preferably larger than X to distinguish a first user input at a first location relative to the particular region **113** and a second user input at a second location relative to the particular region **113**. The user interface system **100** may also include a fluid outlet layer as described above between the top layer **501***a* and the bottom layer **503***a*. In this fourth preferred embodiment, the top layer **501***a* functions to define the surface **115** and cooperate with the spacers **505***a* and the bottom layer **503***a* to form the sheet **102** and to define the fluid vessel **127**. The fluid vessel **127** is then filled with a fluid **112** and preferably expands (as shown by the dotted line representing the expanded particular region **113** in FIG. **18***a*) and retracts with manipulation of the volume of the fluid **112** similarly or identically to the fluid vessel **127** as described above. The first set of electrical conductors **511***a* preferably also expands along with the top layer **501***a*. Alternatively, the first electrical conductors **511***a* may be located on the fluid outlet layer that remains relatively stationary and may not expand along with the top layer **501***a*. However, any other suitable arrangement of the electrical conductors may be used.

[0045] The seal **502** is preferably formed using the spacers **505***a*. In the preferred embodiments, the spacers **505***a* are preferably bonded to the top layer **501***a* and/or the bottom layer **503***a* to form a substantially leak tight fluid vessel. As shown in FIG. **18**, a portion of the fluid vessel **127** (such as the channel **138**) may be substantially defined by the bottom layer **503***a* that is coupled to a channel **138** while the expanding portion of the fluid vessel **127** (such as the cavity **125**) is cooperatively defined by the top layer **501***a*, bottom layer **503***a*, and the seal **502**. Such bonded spacers **505***a* are hereafter referred to as "boundary-spacers." In the variation where the spacers **505***a* are composed of a top component and a bottom component which are then assembled to form the spacer **505***a*, the top component and the bottom component are preferably fused together to form a continuous spacer **505***b* that is substantially leak tight wall to the fluid vessel **127** to form the seal **502**, as shown in FIGS. **18***a*, **18***b*, and **18***c*. Similar to the methods used to bond the sheet **102** to the top layer **501** discussed in the first preferred embodiment, spacers **505***a* (and the top and bottom components of the spacers **505***b*, where appropriate) may be bonded to the top layer **501***a* and the bottom **503***a* using heat welding, ultrasonic welding, or any other suitable process that creates a substantially leak tight seal. However, the seal **502** may alternatively be assembled into the space between the top and bottom layers **501***a* and **503***a* and may be separate from the spacers **505***a*. For example, the seal **502** may be a balloon that is assembled into the resistive touch sensitive layer **500***a* and the top and bottom layers **501***a* and **503***a* may function to shape the balloon into the fluid vessel **127**. However, any other suitable seal may be used to define the fluid vessel **127**.

[0046] As shown in FIG. **18***a*, a cavity **125** and/or the fluid vessel **127** may span the space in between two spacers **505**. Alternatively, because the number and frequency of spacers **505***a* may be related to the desired flatness of the surface **115** and the optical quality of the sheet **102** (for example, the higher the number and the higher the frequency of spacers **505***a*, the flatter the surface **115**, the flatter the surface **115**, the higher the optical quality of the sheet **102**), the spacers **505***a* may be located at such a close proximity to each other that the corresponding particular region **113** to a cavity **125** and/or fluid vessel **127** that spanned between only two spacers **505***a* would most likely not be felt by the finger of a user. In this variation, the cavity **125** may span the space between three, four, or any other suitable number of spacers **505** to achieve a suitably sized cavity **125** and corresponding particular region **113**, as shown in FIG. **18***b*. To achieve the larger span of the cavity **125**, the spacers **505***a* that are in between the boundary-spacers **505***b* of the cavity **125** are preferably not bonded to the top and bottom layers **501***a* and **503***a* to form a leak tight seal, allowing the fluid **112** to communicate throughout the volume of the desired cavity **125** such that manipulation of the volume of fluid **112** within the fluid vessel **127** will expand the fluid vessel **127** and cause the particular region **113** to deform outward. The expansion of the fluid vessel **127** preferably causes the top layer **501***a* to separate from the spacer that does not define the wall of the fluid vessel **127**. Alternatively, the spacer **505***a* may also stretch and elongate to follow the expansion of the fluid vessel **127**. In this variation of the spacer **505***a*, the spacer **505***a* is preferably composed of a substantially pliable material, function to manipulate the shape of the deformation of the particular region **113** and/or preferably maintain refractive properties to decrease visibility as the material stretches. Yet alternatively, in the variation of the spacer **505***a* that is composed of a top component and a bottom component, the top component may expand with the top layer **501***a*, as shown by the dotted line representing the particular region **113** in FIG. **18***b*. However, any other suitable bonding and expansion arrangement between a non-boundary-spacer **505***a* and the top layer **501***a* may be used. Alternatively, as shown in FIG. **18***c*, the non-boundary-spacers **505***a* may be removed. An advantage provided by this variation is that a user input that inwardly deforms the particular region **113** will not be hindered by the presence of spacers within the cavity **125**. Alternatively, to increase flexibility in the tactile guidance provided to the user, the cavity **125** and/or fluid vessel **127** may span the distance between two spacers **505***a* and a combination of the expansion of several cavities **125** in relative close proximity with each other and their corresponding particular surfaces **113** may be used to provide tactile guidance to the user. The user interface system may also include a combination of various sizes of cavities **125** (as shown in FIGS. **18***b* and **18***c*). However, any other suitable size of cavity **125** relative to the spacers **505** may be used.

[0047] As shown in FIGS. **18***a*, **18***b*, and **18***c*, the boundary-spacers **505***b* preferably function to at least partially define one the fluid vessel **127** in only a portion of the top and bottom layers **501***a* and **503***a*. In other words, there is at least a space in the resistive touch sensitive layer **500** in between two boundary-spacers **505***b* that does not contain a fluid vessel **127**. To decrease the visible difference between portions of the user interface **125** that include the fluid vessel **127** and portions that do not include the fluid vessel **127**, the portions that do not include a fluid vessel **127** may also be filled with the fluid **112** or a fluid with substantially similar optical properties to the fluid **112** to allow light to refract through the sheet **100** in a substantially uniform manner. The portions that do not include a fluid vessel **127** may alternatively be filled with a gas, another type of fluid, or any other suitable material that allows for substantially uniform refraction of light through the sheet **102**.

[0048] The top layer **501***a* is preferably composed of a flexible material that allows the expansion and retraction of