Alternatively, the embedded modifier material **232** may function to increase the overall pliability of the second portion **220**.

[0047] The modifier material **232** is preferably embedded into the first portion **210** or the second portion **220** during the manufacturing process of the layer **110**. Preferably, the modifier material **232** may be placed within a mold for the layer **110** and embedded into the layer **110** at the first portion **210** during the molding process. Alternatively, the layer **110** may be manufactured using a layering process wherein thin-layers are stacked. During the stacking process of the thin-layers, the modifier material **232** may be placed in the first portion **210** and embedded into the layer **110** during the thin-layer stacking process. In a variation of the thin-layer stacking process, the layer **110** may consist of at least two thin-layers wherein the thin-layers are each manufactured independently and then assembled with the modifier material **232** placed in between the thin-layers in a suitable arrangement. The thin-layers may then be attached or bonded using adhesive, heat treatment, ultra-sonic bonding, oxygen plasma surface treatment, or any other techniques known to one skilled in the art. Alternatively, the modifier material **232** may be formed into the suitable arrangement and then inserted in between two layers of base material. The pre-formed modifier material **232** may then be bonded or attached to the base material. The modifier material **232** may alternatively be embedded into the first portion **210** after the layer **110** has been made. For example, the layer **110** may be molded to define a niche in the first portion **210**. The modifier material **232** is then assembled into the niche and sealed with a sealing material that is preferably substantially similar to the base material **230** (for example, a plug made of the base material **230** that is bonded to the layer **110**) but may alternatively be of a sealing material substantially dissimilar from the base material **230** (for example, an adhesive or a sealant). The layer **110** may also be molded as a continuous layer, wherein a post-manufacturing process creates a niche at the first portion **210** of the layer **110**, allowing the modifier material **232** to be assembled into the niche through a process similar to that mentioned above. In the variation where the modifier material **232** chemically reacts with the base material, the assembled modifier material **232** and base material **230** of the layer **110** may be put through a heat treatment, an ultraviolet treatment, or any other suitable treatment to activate the chemical reaction between the modifier material **232** and the base material. However, any other suitable method and/or process suitable to embedding a secondary material into the first portion **210** of the layer **110** may be used.

[0048] As a person skilled in the art of will recognize from the previous detailed description and from the figures and claims, modifications and changes can be made to the preferred embodiments of the invention without departing from the scope of this invention defined in the following claims.

We claim:

1. A user interface system, comprising:

a layer defining a surface;

a substrate supporting the layer and at least partially defining a cavity;

a displacement device coupled to the cavity that expands the cavity, thereby deforming a particular region of the surface; and

a touch sensor coupled to the substrate and adapted to sense a user touch proximate the particular region of the surface;

wherein the layer and the substrate are connected at an attachment point, and wherein the location of the attachment point relative to the layer, substrate, and cavity at least partially defines the shape of the deformed particular region of the surface.

2. The user interface system of claim **1**, wherein the deformed particular region of the surface includes two states: a fully expanded state and an user actuated state, wherein the deformed particular region transitions into the user actuated state when a force is applied to the deformed particular region of the surface and transitions into the fully expanded state when the force is removed from the deformed particular region of the surface.

3. The user interface system of claim **2**, wherein the location of the attachment point relative to the layer, substrate, and cavity at least partially defines the shape of the deformed particular region of the surface in the fully expanded state and the user actuated state.

4. The user interface system of claim **1**, wherein the layer and substrate are connected by a plurality of attachment points.

5. The user interface system of claim **4**, wherein each of the plurality of attachment points are located substantially proximal to each other to form a continuous seal.

6. The user interface system of claim **5**, wherein the continuous seal defines a first portion of the layer that deforms with the expansion of the cavity and a second portion of the layer that remains relatively undeformed with the expansion of the cavity.

7. The user interface system of claim **1**, wherein the layer is of a uniform material and thickness.

8. The user interface system of claim **1**, wherein the attachment point is located within the cavity.

9. The user interface system of claim **1**, wherein the layer includes a first portion of a material characteristic and a second portion of a second material characteristic, wherein the pliability of the second portion is higher than the first portion, and wherein the location of the attachment point relative to the first portion and second portion at least partially defines the shape of the deformed particular region of the surface.

10. The user interface system of claim **9**, wherein the first portion of the layer is of a first geometry and the second portion of the layer is of a second geometry.

11. The user interface system of claim **10**, wherein the first portion of the layer is of a first thickness and the second portion of the layer is of a second thickness, wherein the second thickness is less than the first thickness.

12. The user interface system of claim **10**, wherein the first portion of the layer is continuous and the second portion of the layer defines a void.

13. The user interface system of claim **10**, wherein the first portion and second portion of the layer are composed of a material that is more pliable when a force is applied in a first direction than when a force is applied in a second direction, and wherein the material is oriented in the first direction relative to the force from the expansion of the cavity at the first portion and the material is oriented in the second direction relative to the force from the expansion of the cavity at the second portion.

14. The user interface system of claim **13**, wherein the structure of the material is selected from the group consisting