As depicted, flexible material **38** is adjusted by the position of a lever **56** along a bearing **58**. An actuator **54** raises and lowers the left end of lever **56** whereby the position of the right end of lever **56** is adjusted. When utilized in the present embodiment, multiple sets of lever **56** and actuator **54** are provided to control the pressure placed on flexible material **38**. In addition alternate shapes of lever **56** may be utilized. For example, lever **56** may have a tip that is triangle, square, or circular in shape. In addition, a combination of screw flange **50**, lever **56** and other supporting mechanisms that are adjustable to apply tactile-detectable pressure to flexible material **38** may be utilized. For example, a supporting mechanism may be utilized whereby actuation of fluids controls the pressure applied by the supporting mechanism to flexible material **38**. In addition, as depicted with screw flange **50**, a touch sensitive element may be utilized.

Referring now to FIG. **6**, there is illustrated a partially schematic block diagram of a controller for a topographical interface system in accordance with the method and system of the present invention. As previously depicted, topographical modeling system **30** comprises a topographical interface **32** that includes a flexible material **38** with a display surface embedded therein.

A processor **80** is preferably provided within topographical interface system **30**. Processor **80** preferably interfaces with display driver circuits **72**, actuator driver circuits **74**, and input interface circuits **76**. While not depicted, additional buses and devices, such as RAM and ROM may be included with processor **80**. In addition, while not depicted, additional I/O devices may be included which are controllable by processor **80**.

A graphical display signal is preferably received at processor **80**. The graphical display signal preferably includes physical characteristics for three-dimensional graphical images provided by the graphical display signal. Processor **80** receives the graphical display signal from a data processing system and preferably determines and sends signals to display driver circuits **72**, which will produce the desired visual graphical representation on display surface **38**. The type of circuitry utilized for display driver circuits **72** will be determined by the type of display technology utilized for a particular application, while the complexity of the circuitry will be determined by the size and type of display surface **38**. In addition, in response to receiving a graphical display signal, processor **80** determines and sends signals to actuator driver circuits **74**, which will drive actuators **70** to move supportive mechanisms **71** to create the desired three-dimensional tactile-detectable imagery with a particular texture, resiliency, and temperature.

One type of user input preferably comes from tactile input in the form of touch, pressure and motion on topographical interface **32**. Sensors **73** receive user input in the form of touch, pressure, and motion and provide signals to input interface circuits **76**. Input interface circuits **76** provides signals to processor **80** that relay user input in the form of the location of user input, the magnitude of force applied, the direction of force applied, and other sensed data such as temperature and vibration. From the external force, processor **80** may determine a three-dimensional graphical image with associated physical characteristics from the sensed force. The three-dimensional graphical image with associated physical characteristics can be stored as an image file. In addition, the three-dimensional graphical image with associated physical characteristics can be retrieved and displayed on the topographical modeling system. It is important to note that while sensors **73** are depicted for sensing external force, a sensing system that senses color and shading may also be utilized with the present invention.

Additionally, from the external force, processor **80** may determine the amount of force feedback to apply to the signals sent to actuator driver circuits **74** such that the tactile-detectable graphical representation responds to user input. For example, if a graphical image of a marshmallow is displayed, the resistance of the marshmallow display surface adjusts in response to a user pressing the surface, as if pressing the surface of an actual marshmallow. Alternatively, if a graphical image of a brick is displayed, the resistance of the brick display surface adjusts in response to a user pressing the surface, as if pressing the surface of an actual brick. Thereby, the resistance of each supportive mechanism is adjusted through actuator driver circuits **74** in order to simulate surfaces with resistance.

In addition, processor **80** may determine visual feedback in response to external force. Color, shading, and shape characteristics associated with a graphical image may be utilized to determine signals for display driver circuits **72** when external force is applied. In the example of a graphical image of a marshmallow, the visual image of the marshmallow will typically expand when force is applied thereto. Therefore, as external force is applied to the surface of the marshmallow, the visual graphical representation is adjusted to show changes in shading as the shape of the marshmallow is adjusted.

Moreover, processor **80** utilizes the input signals provided by interface control circuits **76** to determine a user input signal that is output to a data processing system indicating the type of input entered. Data processing system preferably adjusts the graphical display signal in response to the type of input entered. With reference now to FIG. **7**, there is depicted a high level logic flowchart of a process for controlling inputs and outputs of a topographical interface system in accordance with the method and system of the present invention. As illustrated, the process starts at block **100** and thereafter proceeds to block **102**. Block **102** depicts a determination as to whether or not a graphical display signal is received. If a graphical display signal is not received, the process passes to block **108**. If a graphical display signal is received, the process passes to block **104**. Block **104** illustrates mapping signals for the visual output. Next, block **106** depicts mapping signals for the tactile output. The signals for tactile output designate which supportive mechanisms to reposition and the amount to reposition those elements. In addition, the amount of resistance applied by each element may be mapped. Thereafter, the process passes to block **108**.

Block **108** illustrates a determination as to whether or not input signals have been received. If input signals have not been received, the process ends. If input signals have been received, the process passes to block **110**. Block **110** depicts determining a three-dimensional graphical image with physical characteristics. Next, block **112** illustrates determining force feedback and visual feedback. In determining force feedback, the control signals for the actuators are adjusted in order to model the tactile-detectable physical characteristics of the graphical image when external force is applied. In determining visual feedback, the controls signals for the visual display are adjusted to model the visual physical characteristics of the graphical image when external force is applied. Thereafter, block **114** depicts mapping signals for visual output. Block **116** illustrates mapping signals for tactile output. Thereafter, block **118** depicts outputting a user input signal and the process ends.

Referring now to FIG. **8**, there is illustrated a high level logic flowchart of a process for processing inputs and determining outputs to a topographical interface system in