initialization, step **810** sends out the key symbol for the first time to the host interface communication queue, along with any modifier symbols being held down by the opposite hand. Step **812** records the time the key symbol is sent for future reference by decision diamond **808**. Processing then returns to step **770** to await the next proximity image scan.

[**0293**] Until the finger lifts off or another taps asynchronously, processing will pass through decision diamond **798** to check whether the key symbol should be sent again. Step **806** computes the symbol repeat interval dynamically to be inversely proportional to finger proximity. Thus the key will repeat faster as the finger is pressed on the surface harder or a larger part of the fingertip touches the surface. This also reduces the chance that the user will cause more repeats than intended since as finger proximity begins to drop during liftoff the repeat interval becomes much longer. Decision diamond **808** checks whether the dynamic repeat interval since the last typematic symbol send has elapsed, and if necessary sends the symbol again in **810** and updates the typematic send time stamp **812**.

[**0294**] It is desirable to let the users rest the other fingers back onto the surface after typematic has initiated **804** and while typematic continues, but the user must do so without tapping. Decision diamond **805** causes typematic to be canceled and the typematic element deleted **778** if the user asynchronously taps another finger on the surface as if trying to hit another key. If this does not occur, decision diamond **182** will eventually cause deletion of the typematic element when its finger lifts off.

[**0295**] The typing recognition process described above thus allows the multi-touch surface to ergonomically emulate both the typing and hand resting capabilities of a standard mechanical keyboard. Crisp taps or impulsive presses on the surface generate key symbols as soon as the finger is released or decision diamond **792** verifies the impulse has peaked, ensuring prompt feedback to the user. Fingers intended to rest on the surface generate no keys as long as they are members of a synchronized finger press or release subset or are placed on the surface gently and remain there along with other fingers for a second or two. Once resting, fingers can be lifted and tapped or impulsively pressed on the surface to generate key symbols without having to lift other resting fingers. Typematic is initiated ether by impulsively pressing and maintaining distinguishable force on a key, or by holding a finger on a key while other fingers on the hand are lifted. Glancing motions of single fingers as they tap key regions are easily tolerated since most cursor manipulation must be initiated by synchronized slides of two or more fingers.

[**0296**] Other embodiments of the invention will be apparent to those skilled in the art from consideration of the specification and practice of the invention disclosed herein. It is intended that the specification and examples be considered as exemplary only, with a true scope and spirit of the invention being indicated by the following claims.

What is claimed is:

1. A touch-sensitive apparatus comprising:

a. a deformable touch layer having a top surface accessible to a user and a bottom surface;

b. a compliant dielectric layer mounted below the deformable touch layer adjacent to the bottom surface;

c. a sense object layer mounted below the compliant dielectric layer; and

d. a plurality of sensors spaced apart from each other and affixed between the bottom surface of the deformable touch layer and the compliant dielectric layer, each sensor capable of providing any indication of proximity to the sense object layer.

2. The apparatus of claim 1 wherein the deformable touch layer is a dielectric material.

3. The apparatus of claim 1 wherein the sensors are also capable of providing an indication regarding the proximity of an object to the top surface of the deformable touch layer.

4. The apparatus of claim 1 wherein the sensors are capacitance sensors and the sense object layer is an electrical conductor.

5. The apparatus of claim 1 wherein the sense object layer is an electrical conductor.

6. The apparatus of claim 5 wherein the sense object layer is coupled to a local ground connection.

7. The apparatus of claim 6 wherein the compliant dielectric layer is coupled to a local ground.

8. A method of sensing the position of an object comprising the steps of:

e. providing a deformable touch layer having a top surface accessible to a user and a bottom surface, the top surface having a length and width;

f. providing a compliant dielectric layer mounted below the deformable touch layer and forming a border with the deformable touch layer;

g. providing a sense object layer mounted below the compliant dielectric layer;

h. sensing the presence of an object positioned above the deformable touch layer; and

i. providing a signal indicating the three dimensional position of the object.

9. The method of claim 8 wherein the signal comprises information regarding the position of the object with respect to the length and width of the top surface and the position of the object with respect to the sense object layer.

10. The method of claim 9 wherein the sensing step is performed by a plurality of sensors spaced apart from each other and affixed in the region of the border.

11. The method of claim 10 wherein each sensor is capable of providing an indication of proximity to the sense object layer.

12. The method of claim 10 further comprising the step of applying force with an object to the top surface of the deformable touch layer, thereby deforming the compliant dielectric layer and moving the border, and any sensor affixed thereabout, closer to the sense object layer.

13. The method of clam **8** wherein the deformable touch layer is a dielectric.

14. The method of claim 12 wherein the signal indicates position relative to the length and width by determining a subgroup of the plurality of sensors closest to the object.

15. The method of clam **14** wherein the subgroup is a single sensor.

16. The method of claim 14 wherein the signal indicates position relative to the sense object layer by determining the intensity of response from one or more sensors.