

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**.

[**0295**] 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.

[**0296**] 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 either 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.

[**0297**] 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 method comprising:

providing an array of sensors, each sensor capable of detecting a nearby object;

selecting a first group of sensors that is a subset of the array of sensors;

selecting a second group of sensors that is a subset of the array of sensors and has only one sensor in common with the first group of sensors;

activating the first group of sensors;

coupling the second group of sensors to a first sense measurement element resulting in the operational coupling of the only one sensor in common to the first sense measurement element;

receiving indications from the first sense measurement element;

assigning the received indication to a third group representing a part of a hand;

associating the third group with a specific part of a hand.

2. The method of claim 1 wherein the indications of the first sense measurement element are associated with one or more image pixels.

3. The method of claim 1 wherein the indications of the first sense measurement element are associated with a proximity image.

4. The method of claim 1 wherein the third group represents a finger.

5. The method of claim 1 wherein the fourth group represents a plurality of sensors that were proximate to a hand part at a particular time.

6. An apparatus comprising:

a surface comprising a plurality of sensors, each sensor capable of detecting a nearby object, and each sensor having an input and an output;

a sense measurement element;

a multiplexer arrangement coupling a power source to the sense measurement element through each of the plurality of sensors in a sequential fashion to create indications for each sensor;

a segmentation unit for evaluating indications of the sensors and for segmenting the indications into a plurality of groups, each of the groups representing a part of a hand;

an identification unit for associating each of a plurality of the groups with a specific part of a hand.

7. The apparatus of claim 6 further comprising a tracking unit for determining, relative to the surface, a path of each hand part over elapsed time.

8. The apparatus of claim 6 further comprising a pen grip detector for evaluating representations of the groups to determine if the surface is proximate to a hand in the position of gripping a pen.

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