the point halfway through the stream of stored touch signal values **1055**. This approach locates the center of a broad peak by first finding its edges, and may be more suitable for a filter impulse response with a relatively broad and flat top. The approach requires retaining data in memory long enough to retrieve the mid-peak values when both edges of the broad peak are determined.

[**0090**] Another embodiment is illustrated in the flowchart of **FIG. 11**, wherein the preferred time for the touch location measurement falls at a fixed delay interval after the relative slope decreases below a predetermined value. The delay interval may be chosen to match half the peak width of a broad and flat topped impulse response that has been provided by the filter. A touch signal is sampled **1110** and the relative slope is calculated **1130**. In response to the relative slope decreasing below a predetermined value **1140**, a delay is initiated for a predetermined interval **1150**. Following the delay interval, the touch location measurement is made **1160**. Other methods and variations for determining a preferred time for making the touch location measurement will be evident to those skilled in the art.

[**0091**] Two additional concerns may arise in the case of soft touches or streaming touches. For soft touches, there is potential for a sufficiently slow touch to take an excessive amount of time to trigger a preferred time for touch location measurement. The delay may be viewed as excessive if it is noticeable to the user, and if an earlier response could have been provided with sufficient accuracy. Another concern may be to provide a continuous or streaming flow of location coordinates for a moving touch used to perform drawing or drag-and-drop functions.

[**0092**] One embodiment of the invention, illustrated in the flowchart of **FIG. 12**, reduces the effect of excessive delay in determining the preferred time for making a touch location measurement in the case of a slow touch. To mitigate the effect of excessive delay, the time elapsed since the current touch condition has first been detected may be monitored, and a time-out may be asserted if the delay exceeds a predetermined value before the preferred time for touch location measurement has been determined. As illustrated in **FIG. 12**, the touch signal is sampled **1205** until a touch condition is detected **1210**. In response to detecting the touch condition **1210**, the touch signal continues to be sampled while a timer is incremented **1215**, **1220**. If the preferred time of the touch location measurement is detected **1230** before time out **1240**, then the touch location measurement is made **1270**. If the preferred time of the touch location measurement is not detected prior to time out **1240**, then the action taken may depend on the application. Where such slow touches are taken as deliberate **1245**, a location measurement point may be established at time-out **1250**. In one example, the touch system may be set up by the user to assume slow touches are deliberate. In another example, the controller may be configured to determine when a slow touch may be taken as deliberate. As the slow nature of the touch creates little touch-dependent error, the touch location measurement need not be taken at the preferred time in order to achieve sufficient accuracy. Where the nature of the application suggests that such slow touches are not deliberate **1245**, but result from inadvertent contact **1260**, the touch signal may be masked until the current touch condition is removed **1265**, indicated by a touch signal magnitude decreasing below a threshold, and a new one established, indicated by the touch signal magnitude rising above a threshold.

[**0093**] A streaming touch signal indicates movement of a touch across the surface of the touch screen. This type of touch generates a flow of touch coordinate positions that are reported following the initial touch down coordinates, and that may be continued until the touch condition ends, as by the touch signal falling below a predetermined fixed threshold. The initial coordinates at touch down may be computed in accordance with a location measurement point established by any of the above methods. Generally, the streaming coordinate values will be computed continuously from the current stream of processed and filtered force sensor data, optionally with additional filtering to smooth the path described by the coordinate stream. When the force is changing rapidly, however, there may be potential for error from touch-dependent dynamic noise. At such times, it may be advantageous to omit coordinate outputs, or to repeat the last set of accurate values, until the force is again free of such rapid change. Such change often occurs as a quick dip in force right after touch down, and again at the end of the touch, if the finger is lifted abruptly.

[**0094**] In one embodiment, improved streaming performance is achieved by inhibiting coordinate updates whenever the relative slope falls outside a predetermined range around zero. This embodiment is illustrated in the flowchart of **FIG. 13**. The touch signal is sampled **1305** until the preferred time for touch location measurement is detected **1310**. In response to detecting a preferred time for location measurement **1310**, the touch down location is calculated **1315** and output. In the case of a streaming touch, the touch is being moved across the surface of the touch screen, creating a continuous touch condition. The touch signal continues to be sampled **1320** and the total touch force compared to a predetermined touch-off threshold **1322**. If the force is below the streaming threshold, streaming touch output ceases. The computation state may now, for example, return to wait for the next touch **1305**. While the total force continues to exceed the touch-off threshold, the relative slope of the signal calculated **1325**. If the relative slope falls outside a predetermined range **1330**, such as a range around zero, this indicates a rapidly changing signal that may be erroneous due to touch-dependent dynamic error. In this case, the touch location coordinate updates are inhibited and the most recently computed location values are output **1335**. If the relative slope remains within the predetermined range **1330**, for example, a range around zero **1330**, an additional touch location measurement is made and output as a streaming touch location **1340**.

[**0095**] In another embodiment, the first streaming coordinates obtained after touchdown repeat the touch down values for either a predetermined minimum time, or until the streaming location moves at least a minimum predetermined distance. This embodiment is illustrated by the flowchart of **FIG. 14**. The touch signal is sampled **1405** until a preferred time for the touch location measurement is detected **1410**. When the preferred time for touch location measurement is detected **1410**, the touch down location is calculated and output **1415**. In the case of a streaming touch, the touch is being moved across the surface of the touch screen, creating a continuous touch condition. The touch signal continues to be sampled **1420** and the total touch force compared to a