drop in the mutual capacitance **804** is seen at touch pixel a-**5** when the finger touch passes directly over touch pixel a-**5**, and a similar drop in the mutual capacitance **806** is seen at touch pixel b-**5** when the finger touch passes directly over touch pixel b-**5**. If line **808** represents a threshold for detecting a touch event, FIG. **8**A illustrates that even though the finger is never lifted from the surface of the touch screen, it can erroneously appear at **810** that the finger has momentarily lifted off the surface. This location **810** can represent a point about halfway between the two spread-out touch pixels.

[0108] FIG. **8**B is an example plot of an x-coordinate of a finger touch versus mutual capacitance seen at a touch pixel for a two adjacent touch pixels a-**5** and b-**5** in a single row having wide spacings where spatial interpolation has been provided according to embodiments of the invention. As expected, a drop in the mutual capacitance **804** is seen at touch pixel a-**5** when the finger touch passes directly over touch pixel a-**5**, and a similar drop in the mutual capacitance **806** is seen at touch pixel b-**5** when the finger touch passes directly over touch pixel b-**5**. Note, however, that the rise and fall in the mutual capacitance value occurs more gradually than in FIG. **8**A. If line **808** represents a threshold for detecting a touch event, FIG. **8**B illustrates that as the finger moves from left to right over touch pixel a-**5** and b-**5**, a touch event is always detected at either touch pixel a-**5** or b-**5**. In other words, this "blurring" of touch events is helpful to prevent the appearance of false no-touch readings.

[0109] In one embodiment of the invention, the thickness of the coverglass for the touch screen can be increased to create part or all of the spatial blurring or filtering shown in FIG. **8**B.

[0110] FIG. **8**C illustrates a top view of an example column and adjacent row patch pattern useful for larger touch pixel spacings according to embodiments of the invention. FIG. **8**C illustrates an example embodiment in which sawtooth region edges **812** are employed within a touch pixel elongated in the x-direction. The sawtooth region edges can allow fringing electric field lines **814** to be present over a larger area in the x-direction so that a touch event can be detected by the same touch pixel over a larger distance in the x-direction. It should be understood that the sawtooth configuration of FIG. **8**C is only an example, and that other configurations such serpentine edges and the like can also be used. These configurations can further soften the touch patterns and create additional spatial filtering and interpolation between adjacent touch pixels as shown in FIG. **8**B.

[0111] FIG. **9**A illustrates example touch screen **900** including sense (or drive) regions (C**0**-C**5**) formed as columns **906** and rows of polygonal regions (bricks) **902**, where each row of bricks forms a separate drive (or sense) region (R**0**-R**7**) according to embodiments of the invention. In the example of FIG. **9**A, connecting yVcom lines **904** are routed along only one side of the bricks (a so-called "single escape" configuration). Although a touch screen **900** having six columns and eight rows is shown, it should be understood that any number of columns and rows can be employed.

[0112] To couple bricks **902** in a particular row together, connecting yVcom lines **904**, can be routed from the bricks along one side of the bricks in a single escape configuration to a particular bus line **910**. Ground isolation regions **908**, can be formed between connecting yVcom lines **904** and adjacent columns **906** to reduce the capacitive coupling between the connecting yVcom lines and the columns. Connections for each bus line **910** and for columns **906** can be brought off touch screen **900** through flex circuit **912**.

[0113] FIG. **9**B illustrates a close-up view of a portion of the example touch screen **900** of FIG. **9**A, showing how bricks **902** can be routed to bus lines **910** using connecting yVcom lines **904** in a single escape configuration according to embodiments of the invention. In FIG. **9**B, the longer connections, more yVcom lines **904** (e.g. trace R**7**) can be used than the shorter connecting yVcom lines (e.g. trace R**2**) to equalize the overall resistivity of the traces and to minimize the overall capacitive loads seen by the drive circuitry.

[0114] FIG. **9**C illustrates a portion of example touch screen **900** of FIG. **9**A including bricks **902** associated with columns C**0** and C**1** and connecting yVcom lines **904** (illustrated symbolically as thin lines) coupling the bricks to bus lines **910** according to embodiments of the invention. In the example of FIG. **9**B, which is drawn in a symbolic manner and not to scale for purposes of illustration only, bus line B**0** is coupled to brick R**0**C**0** (the closest brick to B**0** adjacent to column C**0**) and R**0**C**1** (the closest brick to B**0** adjacent to column C**1**). Bus line B**1** is coupled to brick R**1**C**0** (the next closest brick to B**0** adjacent to column C**0**) and R who 1 (the next closest brick to B**0** adjacent to column C**1**). The pattern repeats for the other bus lines such that bus line B**7** is coupled to brick R**7**C**0** (the farthest brick from B**0** adjacent to column C**0**) and R**7**C**1** (the farthest brick from B**0** adjacent to column C**1**).

[0115] FIG. **10** illustrates a portion of example zig-zag double interpolated touch screen **1000** that can further reduce the stray capacitance between the connecting yVcom lines and the sense regions according to embodiments of the invention. In the example of FIG. **10**, polygonal regions **1002** representing the drive (or sense) regions are generally pentagonal in shape and staggered in orientation, with some of the polygonal areas near the end of the panel being cut-off pentagons. Sense (or drive) regions **1004** are zig-zag shaped, with ground guards **1006** between the sense (or drive) regions and pentagons **1002**. All connecting yVcom lines **1008** are routed in channels **1010** between pentagons **1002**. In mutual capacitance embodiments, each touch pixel or sensor is characterized by electric field lines **1016** formed between a pentagon and an adjacent sense (or drive) region **1004**. Because connecting yVcom lines **1008** do not run alongside any sense (or drive) regions **1004**, but instead run between pentagons **1002**, the stray capacitance between connecting yVcom lines **1008** and sense (or drive) regions **1004** is minimized, and spatial cross-coupling is also minimized. Previously, the distance between connecting yVcom lines **1008** and sense (or drive) regions **1004** was only the width of ground guard **1006**, but in the embodiment of FIG. **10**, the distance is the width of the ground guard plus the width of pentagon **1002** (which varies along the length of its shape).

[0116] As the example of FIG. **10** indicates, the pentagons for row R**14** at an end of the touch screen can be truncated. Accordingly, the calculated centroids of touch **1012** for R**14** can be offset in the y-direction from their true position. In addition, the calculated centroids of touch for any two adjacent rows will be staggered (offset from each other) in the x-direction by an offset distance. However, this misalignment can be de-warped in a software algorithm to re-map the touch pixels and remove the distortion.

[0117] Although the foregoing embodiments of the invention have been primarily described herein in terms of mutual capacitance touch screens, it should be understood that embodiments of the invention are also applicable to self-capacitance touch screens. In such an embodiment, a refer-