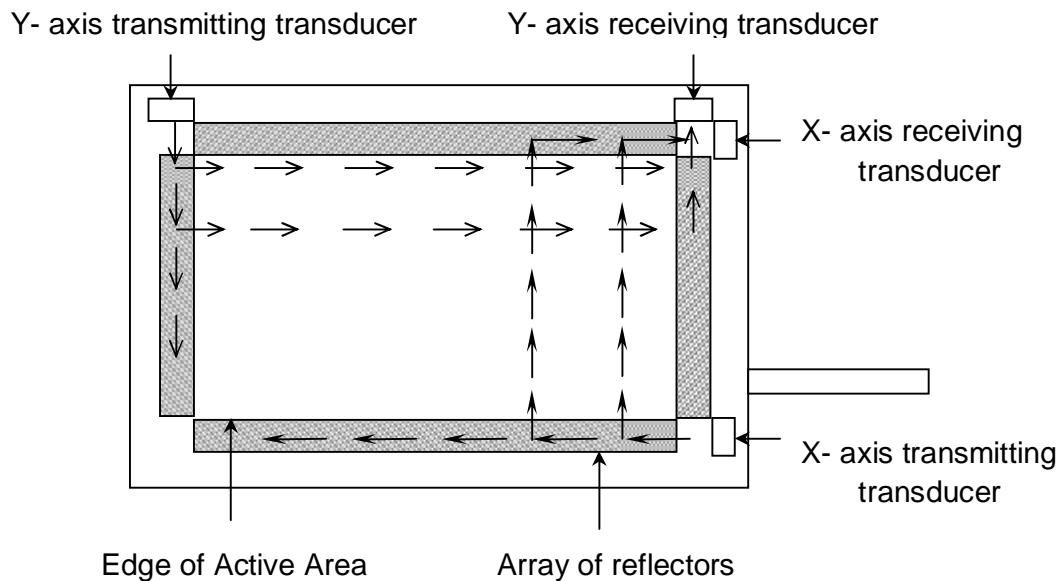


The Working Principle of Surface Acoustic Wave (SAW) Touchscreen

The Structure of Touchscreen

On the pure glass substrate, there are four piezoelectric transmitting and receiving transducers on the three corners for both the X and Y axes. Around the glass, there are four 45-degree reflectors around the glass, divert the ultrasonic bust across the touchscreen.



Working Principle

1. The SAW controller sends a 5 MHz electrical signal to the X-axis and Y-axis transmitting transducers. They convert the signal into ultrasonic waves to the reflectors. These waves are changed direction across the front surface of the touchscreen by an 45-degree array of reflectors. The 45-degree reflectors on the opposite side gather and re-direct the waves to the X-axis and Y-axis receiving transducers, which reconvert them into an electrical signal. The signal is represented by a wavy curve on a oscillograph.

2. When the touchscreen is touched, the finger absorbs a portion of the wave passing across the surface of the panel. The signal received by the receiving transducers is then compared to the wavy curve that is produced when the touchscreen is not touched. The microprocessor in the controller recognizes the change of the wave and calculates a coordinate. This process happens independently for both the X and Y axes. The coordinates are transmitted to the host for processing.