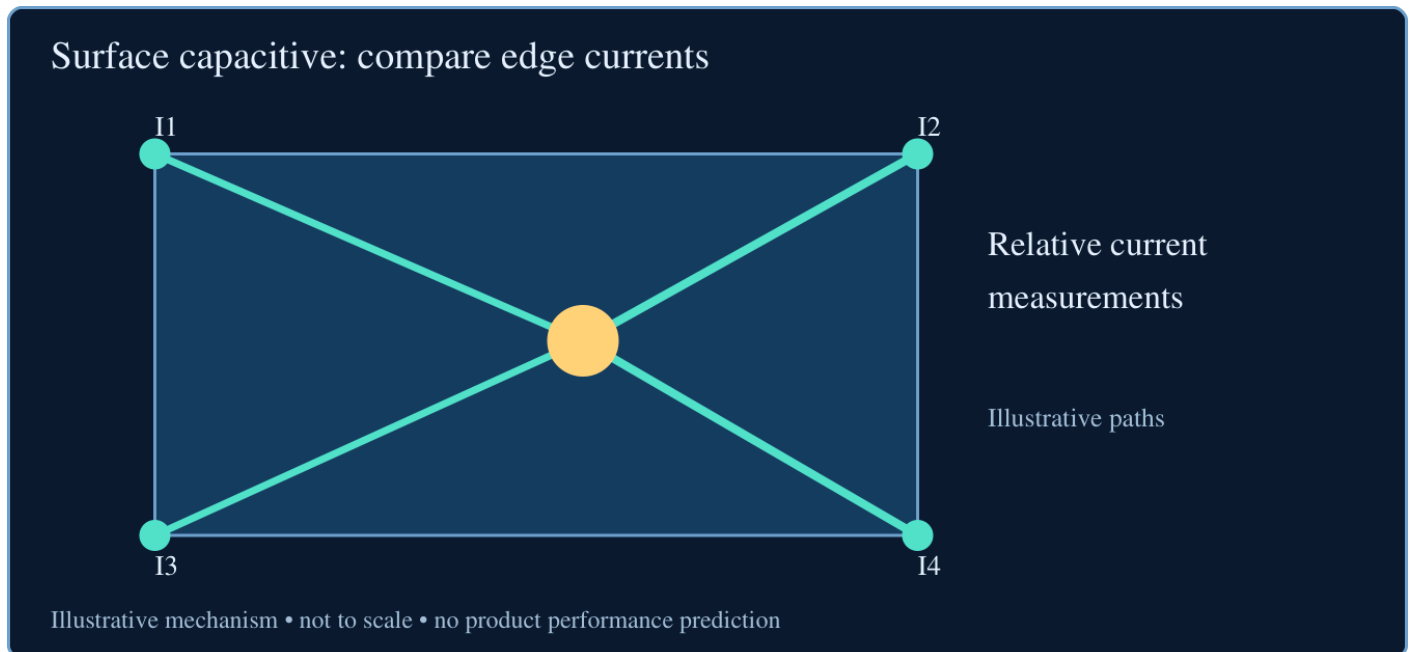


## Surface capacitive: current paths across a sheet

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### One sheet, several measurements

Surface capacitive systems use a conductive coating on glass with electrodes around its edge. A finger changes coupling to the environment and draws AC current through the sheet. The controller compares the measured currents to infer location.

The important idea is the distribution of current, not simply detecting that capacitance exists. In an intuitive four-corner model, a touch nearer one region changes the relative contributions. Actual field shaping and calibration belong to the controller design; simple inverse-distance drawings are not a production algorithm.

This is different from PCAP, which measures patterned electrodes and may resolve many local interactions.

# Surface capacitive: current paths across a sheet

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## Benefits and constraints

The approach offers a glass-based interface with a relatively simple sensing structure. Conductive coupling through the user is part of the measurement, so insulating gloves and passive tools can be limiting. A basic single-touch model does not uniquely resolve arbitrary simultaneous contacts.

For a legacy installation, document both the panel and controller. Replacing one with a visually similar part may change the electrical field, calibration, host reporting or driver requirements. Elo identifies its own surface-capacitive technology as obsolete; that is a lifecycle statement about its offering, not proof that every manufacturer has stopped using the principle.

# Surface capacitive: current paths across a sheet

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## A legacy replacement exercise

Before replacing an installed surface-capacitive panel with PCAP, capture the existing application behavior: touch-down, drag, lift-off, long press and any mouse emulation. Then compare bezel clearance, cover thickness, cable, electrical grounding and host software.

A new panel may deliver more contacts than the old application expects. The product can become less usable if a palm creates unwanted gestures or an operating system interprets a long press differently. Define the desired behavior and configure both controller and application accordingly.

Run the old and new assemblies against the same task script and retain raw events. A successful desktop tap is only the starting point.

### Apply the idea

Why is changing a surface-capacitive controller to a PCAP controller not a simple firmware upgrade?

**Discussion:** The sensor topology and acquisition electronics differ. Matching firmware cannot turn a continuous sheet into the required patterned electrode system.

#### References:

S03 Elo - [Surface capacitive operation \(legacy Elo technology\)](#)

S04 Microchip - [Self-capacitance](#)

S05 Microchip - [Mutual capacitance](#)