Fingerprint Sensor on Display

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Recently, mobile smart phone development and dissemination have evoked a variety of applications and services with high quality display and touch screen. In particular, it is getting important more to improve the security of the user identification and personal authentication for user convenience and also for the services such as mobile payment and mobile banking. Therefore, from the cost, ease of use, and accuracy point of view, the fingerprint recognition has been developed to verify identity as a leading alternative to conventional passwords and keys[1]. Most mobile devices for fingerprint recognition adopt a sensor fabricated on silicon wafer. The thin film transistor(TFT) based sensor on the glass have advantages of low cost while process of wafer based sensor is expensive and relatively complex. The glass process also provides large area sensor array easily. In this paper, we designed TFT based sensor circuit and simulated the sensing voltage under various conditions. Since the glass is transparent, it can be overlied on a display panel. We designed and developed the capacitive sensor for fingerprint sensing. We investigated the effect of on and off current of the TFT, and the distance between the fingerprint and sensor array.

References

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