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Plessey taps Sussex university's electric potential sensor

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Keywords: electric potential sensor power voltmeter

Plessey Semiconductors Ltd has signed a technology licence agreement with the University of Sussex for the manufacture and commercialisation of an electric potential sensor (EPS). The sensor which is seen as potentially disruptive in multiple markets can be used to measure electric potential without drawing current.

Plessey and the University of Sussex have not revealed details of the agreement. Plessey is a recently-formed company that has taken over the products, IP and a wafer fabrication facility formerly associated with the name.

The sensor can be used to measure electric potential without drawing current according to the man who developed the device, Robert Prance of the university's centre for physical electronics and quantum technology. "It's the almost perfect voltmeter. Electrically non-invasive and with minimal field disturbance," said Prance.

The sensor's main feature is the electronically-enhanced input impedance achieved by the use of feedback techniques leading to input impedances as high as $10^{17}\Omega$ at 1Hz. These sensors can then function as voltmeters for AC signals from various sources provided the input impedance is much larger than the sensor-source impedance.

Sensors made by the university research team have demonstrated a sensitivity of microvolts per metre and an accuracy of 2 per cent.

CMOS compatibility

As the sensor operates through capacitive coupling, without contact and at long range, the applications are broad, from remote electrocardiopgraphy (ECG) and electroencephalography (EEG) to monitoring muscle movements and breathing and on to non-contact measurements of voltage in electronic circuits. The sensor, which requires no physical or resistive contact to make measurements, will enable novel medical equipment to devices that can "see" through walls, Plessey said. The applications therefore include medical diagnosis and imaging, security, and the human-machine interface.

Keith Strickland, technology director at Plessey Semiconductors, said, "The EPS technology created by Prance's team at the University of Sussex is a significant innovation that will have a wide-ranging disruptive impact in the sensor market. In conjunction with the University of Sussex, Plessey will be developing an exciting range of EPS sensors utilising our in-house expertise in semiconductor process technology and design. In particular, our expertise with CMOS image sensors will enable us create very large chips with arrays of EPS sensors. We expect to have our first product prototype available in Q3 of next year for a medical diagnosis product that will significantly advance the ease and quality of cardiac measurements."

Prance said that since the technology consumes little power, it is possible to power the device by energy harvesting.

1 • 2

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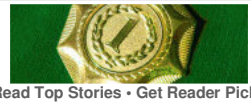

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