

Startup to develop contactless electronic connections

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(PhysOrg.com) -- UCLA has opened its on-campus technology incubator space at the California NanoSystems Institute to WaveConnex Inc., a startup company that plans to conduct proof-of-concept research for the development of contactless electronic connections that can be used in virtually all electronic systems.

WaveConnex, which was incorporated in August 2009, is dedicated to leveraging research in millimeter-wave radio technology developed by UCLA electrical engineering professor Frank Chang toward the development of products for contactless connections. The company has licensed the technology from UCLA.

Contactless connections allow data to be exchanged between electronic devices without them touching one other. The technology being developed by WaveConnex will potentially enable wide-ranging applications in the areas of database transfer, Internet infrastructure and entertainment electronics, among others.

The company will exploit the propagation properties of millimeter-wave [electromagnetic radiation](#) generated on silicon material. The product platform form-factor is a piece of silicon measuring 2 x 1 mm, about the size of a grain of rice.

WaveConnex expects that its products will serve as replacements for metal-to-metal interconnections currently used in nearly all electronic systems. These new products will have the potential to overcome the

limitations of current connectors in terms of performance, reliability and size.

Among the potential applications are improved pocket-sized "smart cards" with embedded [integrated circuits](#) that can store and process large amounts of data without ever coming into direct contact with another device.

"Imagine you have a credit card sized 'smart card' in your wallet that contains all of your medical history and records in encrypted form, including medications, X-rays, MRI results, etc.," Chang said. "The technology has the potential to enable any doctor to access, with permission, your accurate medical profile, giving them detailed information for the prescription of treatments and enabling them to update your profile."

While such applications are feasible today, they remain highly impractical due to the limitations in speed and size of the current technology. The new technology being developed by WaveConnex will help make this practical by enabling substantially faster transfer of large databases.

"Our products will be based on deep sub-micron CMOS semiconductor technology designed by WaveConnex and manufactured outside of UCLA," said Ira Deyhimy, CEO of WaveConnex.

Provided by University of California Los Angeles

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