

## SMART CITIES: DESIGN & RESEARCH

ABSTRACT – The 21st century has witnessed the active involvement by industries and government sectors to design, architect, build, test, and implement the vision of future Smart Cities. "Smart City" is now a multi-million or even multi-billion dollar topic of the day. Globally, there are over 1000 smart city projects in execution. Much like Elon Musk's vision of realizing private space exploration and hyperloop trains for California, future Smart Cities have a lot of challenges and issues to overcome, spanning across the various verticals of smart health, transport, living, energy, and citizen services and cutting across different technologies of A.I., data analytics, cloud, big data, sensors, Internet of Things, wireless, 5G, security, etc.

In this talk, I shall present a brief overview of smart cities, followed by presenting my own work on a new smart city architecture and explaining the rationale for its design. This is followed by identifying key smart city applications and presenting the new concept of wireless traffic signs - its design, implementation and testing for future smart transport.

Finally, I shall present a new comprehensive security framework design to safeguard a smart city. This deviates from traditional understanding of security and could potentially transform the security industry. The race on building smart cities has begun and it is time to jump onto the bandwagon.

**SPEAKER BIO** – Dr. Toh is a senior fellow at the University of California at Berkeley. His research is on smart cities, mobility, sustainability and energy. Previously, he was VP/CTO of Singapore Power Ltd., and Assistant Chief Executive of Infocomm Development Authority of Singapore, where he led efforts on smart cities, smart living, healthcare, transport and energy. He is an elected Fellow of the UK Royal Academy of Engineering, an IEEE and AAAS Fellow, and a recipient of IET Fleming Medal and IEEE Kiyo Medal. More info: <https://its.berkeley.edu/people/chai-k-toh>.



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