

# Eco-Phone: A Future Safe Phone with Visible Light and Infrared Communication

Sharief, Mohammed

In today's world of cutting-edge technologies, smartphones are evolving faster than any other technology in the market today. New phones are launched every month with cool features, but safety aspect is the one that is usually overlooked. Every smartphone uses RF waves for communication. Long-term exposure of RF is considered unsafe to human brain (specifically children) as per medical fraternity although FCC has set safety guidelines. Eco-Phone is a novel product designed to alleviate above safety hazard by leveraging Visible Light and Infrared Spectrum over GSM for highly safe and secure wireless communication. Product is designed for indoor usage where people spend most of time as per survey done by Cisco. Eco-phone by design has two modular parts. First part is called "Green CellPhone(GCP)" which is an handheld device like a regular mobile except that it receives data/voice via indoor LED lights and uses IR for uplink transmission. Second part is called "Residential Gateway" that communicates with indoor GCP's via VLIR (vice-versa of GCP – VLC Tx / IR Rx) and plus a GSM module that is mounted on it to communicate with the cell-towers. (VLIR Residential gateway is somewhat like a home Wi-Fi router which can be mounted on roof or placed away from GCP users, thus protecting the users from harmful RF radiation. New design of Eco-phone harnesses visible light and infrared for communication nullifying the impact of RF radiation and thus creating a safer indoor environment for all – specifically children, the future generation of smart citizens.

## Awards Won:

International Council on Systems Engineering - INCOSE: Certificate of Honorable Mention