



EII-02

Design and Implementation of a Smart Antenna for 4G Applications

K Pirapaharan, C. Ranaweera, H.K.S. Kumara and R.S.D. Kumarathilaka

This work is to develop a prototype model of the Smart Antenna for the wireless communication networks which could appropriately be utilized in 4G communication. An antenna array system with the aid of control circuitry is designed, implemented and tested. The design, implementation and testing procedure of this prototype of the Smart Antenna includes theoretical modeling, model simulation to narrow the beam, developing algorithm to rotate the beam and implementation of antenna array and control circuitry incorporated with the beam rotation algorithm as well as testing the system to validate with the designed standards. Even though, the control circuitry is designed, it has not been implemented due to the unavailability in the local market and the high cost of dynamic phase shifters. As an alternative, the array system is tested with the static phase shifters (delay lines) to authenticate with the blueprint.