

Increasing the number of IOT devices for given bandwidth by combining FDMA with CDMA

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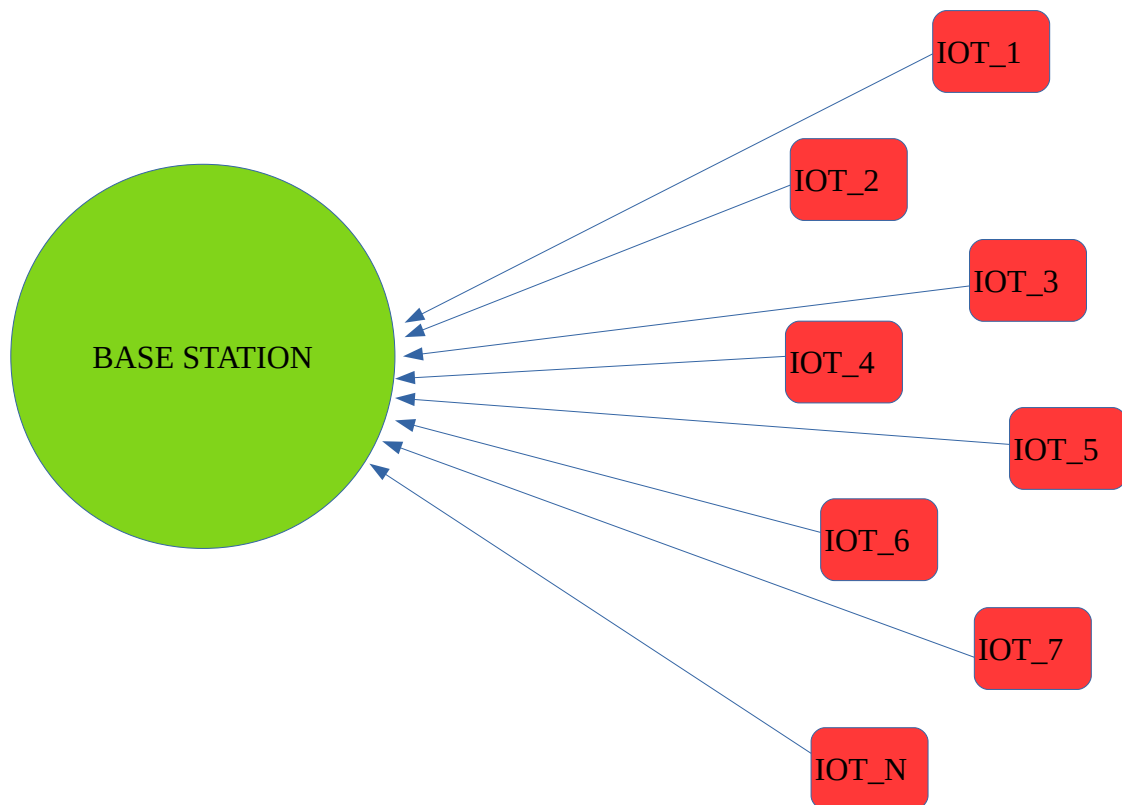
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ABSTRACT

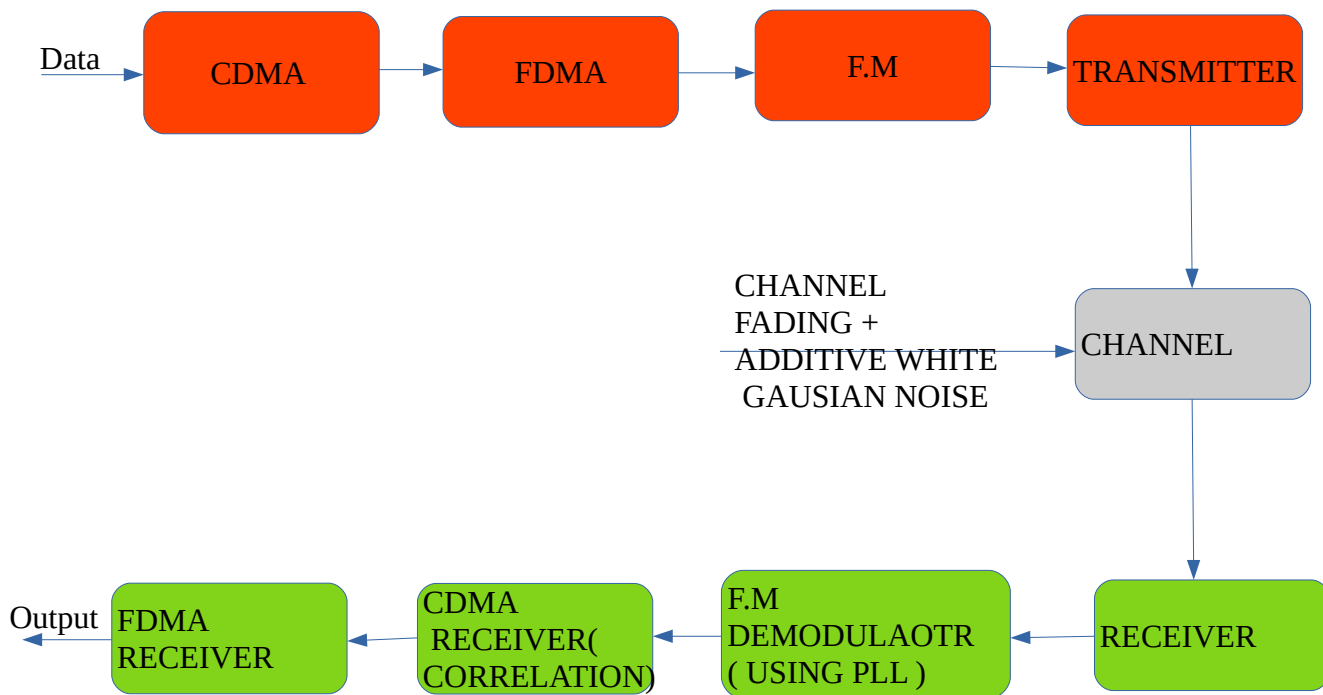
Using CDMA we can multiplex users but that will require more bandwidth and therefore more power consumption, but using FDMA and CDMA both we can distribute same bandwidth to more number of IOT devices.

BLOCK DIAGRAM

Multiple IOT devices sending data to a single control/base station



Block Diagram for a single IOT device



ASSUMPTIONS FOR CHANNEL

- Channel is introducing multipath effect that will result in different values of power received for LOS (Line of sight) signal.
- Increase in multipath effect (i.e lesser value for Ricean factor K) will result in lower power of LOS signal.
- There is additive white Gaussian noise in the channel (because of heating effect in circuits).

GOALS

- Plot of bit error rate vs power delivered to the transmitted signal from sender side.
- Plot of bit error rate vs increasing the multipath effect.
- Plot of power required by all IOT devices vs number of users sending data to Base station. (taking same bandwidth required by CDMA but increasing number IOT devices connected by FDMA).