

# **Adjustable discontinuous reception cycle for idle state users in LTE-A**



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## **TEQIP SUMMER INTERNSHIP RESEARCH WORK PROJECT**

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I Mikki Singh from Bhagalpur College of Engineering, Bhagalpur have done my one month internship organized by TEQIP III under the guidance of Dr Abhinav Kumar .I have completed my internship in Internet of Things.

## **ABOUT TOPIC:**

- In this we have to obtain the optimal length of discontinuous reception cycle by minimizing the signaling cost which includes Tracking area update cost and Paging.
- There are two duration in DRX cycle:
  - The duration during which UE checks whether there is paging message or not is known as on duration.
  - Whereas the duration which UE turns its transceiver off is known as DRX opportunity.
- So, far long term evolution advance has not specified how to set the length of eDRX cycle and leaves it upon operator to define the value they need.
- From the UE perspective the change in the length of the eDRX cycle is a tradeoff between the energy efficiency and latency.
- If the length of e DRX cycle is too short the UEs in idle state will wake up frequently which makes energy to be rapidly consumed.
- From the operators perspective it is the tradeoff between the TAU and paging cost.
- The optimal length of edrx cycle is obtained by analysing TAU cost and paging cost.
  - ✚ Analysis of Tracking area update cost: When a UE is in idle state, it will not hear the change of the tracking area identifier which is broadcast by an eNBs during  $T_d$ . Hence, it will not perform any TAUs even if it has moved into the TA which is not specified in its TAL.
  - ✚ It will perform a TAU when it hears an unknown TAI during  $T_o$ .
- ✚ Analysis of paging cost: Based on the position and the edrx period of a UE, there are four cases when there are incoming to s UE.