

# Thesis during summer vacation

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## I. PRIORITY-BASED RANDOM ACCESS... [1]

- Separating device into several priority level according to their delay sensitivity
- Send msg3 with a overload indicator which means the retry times
- There have two variable P1 and P2 as drop rate of group 1 and group2 to cope the QoS requirement

## II. PRIORITY-BASED RANDOM ACCESS... [2]

- They also separate device into high, medium, low priority level
- To adjust system parameter dynamically to cope different situation
- Estimate congestion level by the number of collision preamble instead of retry times of device
- **In NB-IoT, there is not QoS concept. So it is not necessary to have different priority level**

## III. D2D-BASED GROUPED RANDOM ACCESS... [3]

- Separating device into device classes
- Reducing the times of random access by make several device into a group
- Classify device by device class and geolocation information

## IV. OPTIMAL RESOURCE DEDICATION... [4]

- Separating device into device classes
- Discussing the way to allocate radio network resource
- Purposed an algorithm to dedicate radio network resource to each special device class

## V. FUTURE WORK

- Random Access on NB-IoT study
- NB-IoT in OAI study [5]

## REFERENCES

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- [3] B. Han, O. Holland, V. Sciancalepore, M. Dohler, and H. D. Schotten, "D2d-based grouped random access to mitigate radio access network congestion in massive machine-type communications," *CoRR*, vol. abs/1705.02777, May 2017.
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- [5] A. Ksentini. (2017) openairinterface5g. [Online]. Available: <https://gitlab.eurecom.fr/oai/openairinterface5g/tree/develop-nb-iot>