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**University of Bourgogne Franche Comté**

**Radio Networks - RI53**

**Project-CS: Cell selection**

**Report 2 – Team 3**

**Done by**

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May 16, 2022

At first, we started reading about UMTS and tried to understand its architecture to be able to find how the selection and handover work. Now we are working on writing the algorithm for handover and for how the mobility of UE works in UMTS, while trying to understand the code, from a practical side we have fixed a little the interface of the Radio Mobile Network Tool.

* **Tools used:**

- visual code studio -> Code editor  
- java script -> Programming Language

* **Notions concerning the topic:**

Location of the UE (user equipment): UE has 3 modes

- Switched off. The network cannot locate the equipment. All incoming calls are directed to the voice mail.   
- Turned on but not in communication (Idle Mode or Standby Mode). The user equipment can be located and reached.    
- In communication (Dedicated Mode or Active Mode)

Mobility management is fundamental for the services 

- Selection: Process to select a cell when the mobile is switched on; Done in idle mode  
- Handover: Switching an ongoing call to a different channel or cell or network layer; measurements data are returned to the RAN which takes HO decision: stay or move!  
- Reselection: procedure to allow a terminal to change sector in idle mode or to transfer from a base station to another during a data transfer communication ;   
- Roaming: possibility to access the network with a terminal at any location of network coverage

* **Solution approach:**

Using the 3D power matrix on each point (each 10m) of the user’s path we will measure the power and check for possible reselection or handover. For the case of a selection, it will be at the start, at first we intend to solve the simple path simulation, and then if we succeed we will try to optimize it, as for the implementation we will put a play and pause button on the side of the screen to simulate the movement and stop it when we want.