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Sub project / GAP (incl. sub projects): GAP III (A02, A03, B02)

Date and location: 25.04.2022, Teams

Participants: Robert Weigel, Amelie Hagelauer, Laura Cottatellucci, Stefan Brückner, Jasmin Kolpak, Fabian Michler, Aditya Gupta, Nikita Shanin, Kenneth Mayer.

Keeper of the minutes: Fabian Michler

Date and location for next meeting: 30.05.2022, Teams

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| **topic 1 – Time plan**  *reported by Fabian Michler* |
| content/description: |
| * The Video shoot was successful (11.-14.-04.). This was also a good occasion to discuss joint works and experiments with other sub-projects. * The completion of the Empkins Beacon V2 system (24 GHz non-miniaturized, 1-ch EMG) is still in progress (Stefan Brückner and Jasmin Kolpak). Joint measurements are scheduled for the beginning of May. * LTE will build up a miniaturized 24 GHz Empkins Beacon (numbered V5) right after the V2 system is completely characterized. Therefore, a miniaturized, flexible beacon will be available still within 2022 for the use in the medical/psychological applications. |
| tasks and responsibilities: |
| * -/- |

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| **topic 2 – Progress report of subprojects**  *reported by every PhD student – slides are available in GAP III FAUbox folder* |
| content/description: |
| * A02 by Stefan Brückner:   + Finished the design of an adapter board to connect 1-CH EMG, 24 GHz transmitter and power supply   + This will be the first prototype of the locatable EMG sensor with wireless data transmission (proof of concept; not yet miniaturized)   + Next steps:     - Joint experiment with Jasmin Kolpak scheduled in the beginning of May     - Results will be published (T-MTT or similar) with focus on the localization part * A03/LTE by Jasmin Kolpak:   + Real-time wireless EMG data transmission and visualization achieved   + Next steps:     - Joint experiment (24 GHz beacon localization + EMG data transmission)     - Design of miniaturized electrodes (especially for facial EMG) * A03/MNT by Aditya Gupta:   + Working on 60 GHz oscillator   + Currently optimizing phase noise by simulation * B02 by Nikita Shanin:   + Work on journal paper as extension to last year’s conference paper   + Hardware implementation to compare and evaluate different energy harvesting circuits   + Next steps:     - Characterize fabricated circuits and compare to simulation results     - Improve system performance by using the known receiver position     - Consider higher frequencies (light wave power transfer) to optimize performance * B02 by Kenneth Mayer:   + Simulations on power transfer in MISO systems to find optimal antenna positions (2D)   + First numerical results obtained   + Next steps:     - Interpretation of the results     - Extension to 3D model     - Consider realistic radiation patterns |
| tasks and responsibilities: |
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| **topic 3 – Organizational topics** |
| content/description: |
| * Jasmin Kolpak:   + Will organize a workshop for EMG design and electrode placement   + Invited Prof. Roberto Merletti as specialist (emeritus, Univ. Torino, Italy)   + Date/location to be announced |
| tasks and responsibilities: |
| * -/- |

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| **topics for next meeting**  *may be changed due to new organizer* |
| 🞏 Time plan  🞏 Progress report of subprojects  🞏 Organizational topics |

**Notes:**