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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.
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| 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
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| 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
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| 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:**