

# Thin-film Graphene-based Frequency Demodulation for Health Care Applications

## Background

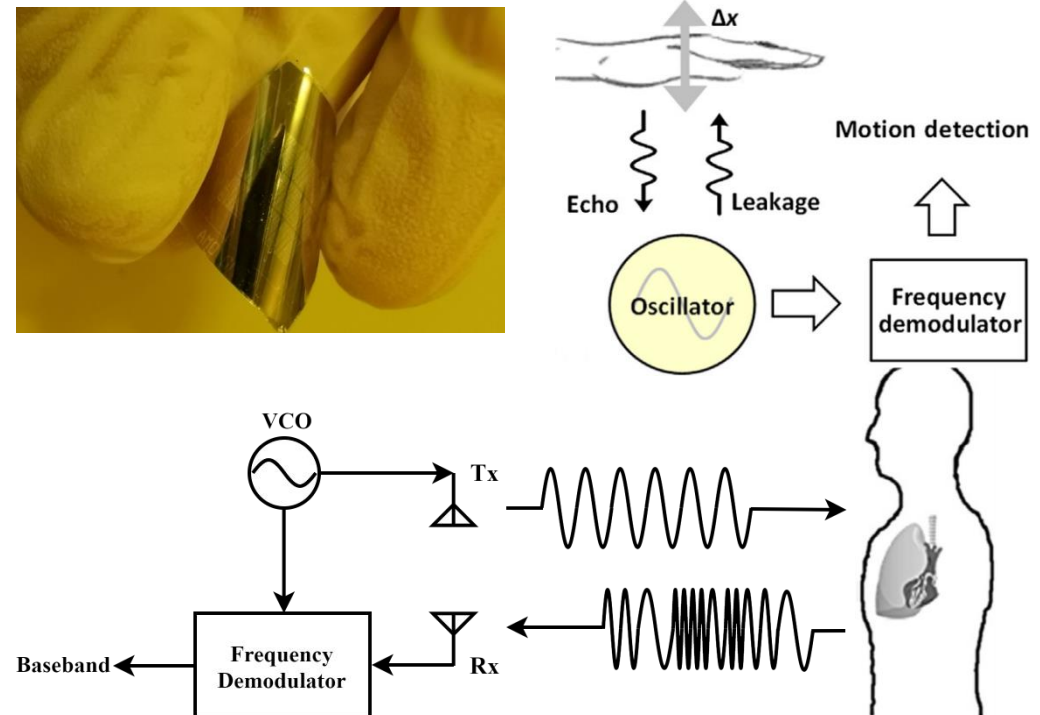
Noninvasive, continuous and remote health monitoring is significant for biomedical sensors to facilitate noncentralised health tracking.

Graphene is the most appealing 2D material and has promising potentials for high frequency applications due to its unique electrical and mechanical properties. Graphene has attracted increasing attention, especially in biomedical applications, because of its thin-film compatibility and flexibility.

Biomedical radar uses radio waves to monitor motion-related information. Thus, the reflected signal that is Doppler-shifted by movements of the target (i.e. heart, lung) needs to be extracted by frequency demodulation.

## Tasks

- Literature Survey
- Analysis of various frequency demodulator topologies
- Circuit design (schematic, layout)
- Characterisation (EM simulation)
- Documentation (Thesis)



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