

3D-printed Conformal Antenna Array for 140 GHz Device-to-Device Communication

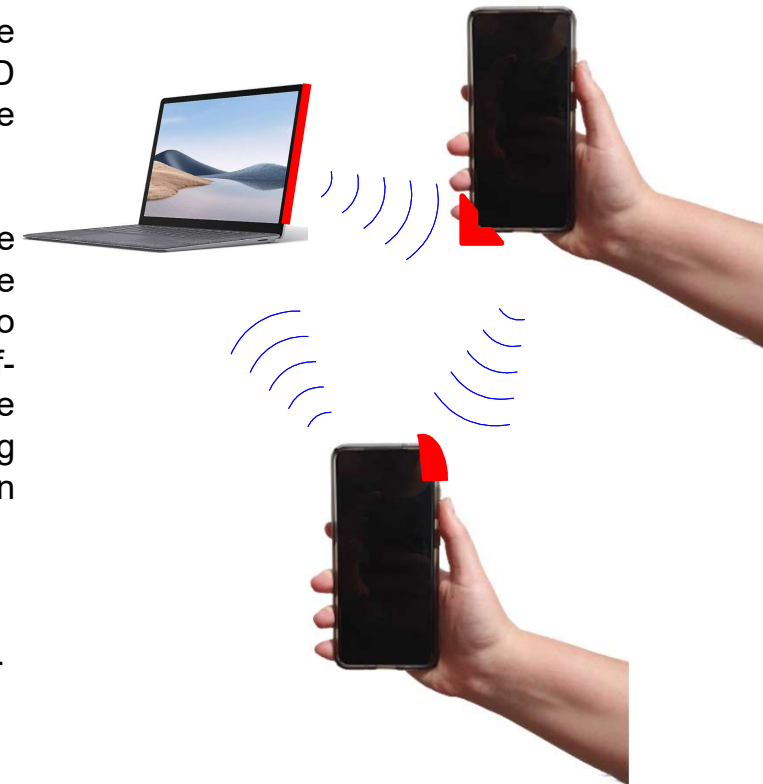
The next-generation 6G wireless communication requires innovative solutions. One of the key application areas for 6G is device-to-device (D2D) communication. In D2D communication, devices communicate directly with one another, bypassing any base stations.

In this work, the focus will be on designing a dielectric resonator antenna array that can be 3D printed and placed on a rounded surface, such as the edge of a phone or a laptop. The conformal 3D printed antenna can save space in the relevant device, will be less prone to interference of the surrounding environment or electronics and can have a wider field-of-view to communicate with multiple other devices simultaneously. The student will have the opportunity to have hands-on experience of building a 140 GHz antenna prototype using the manufacturing and assembly equipment available at IHE and measure the antenna in the millimeter-wave laboratory of IHE.

Prerequisites

Knowledge of antennas and experience with CST Microwave Studio highly recommended.

The thesis can be written in English or German.



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