Antennas, the key element in wireless communication devices had undergone amazing developments especially in the direction of compactness and safety aspects. In the last two decades, the use of the cellular phones has become the most popular mode of communication across the globe. At the same time, the concerns about the radiation effects have increased in the general public. The main concern of this thesis is to develop a mobile antenna which gives reduced RF interference to the user. The reduction of the power absorbed by the user can tremendously avoid any possible health hazards.

The radiation characteristic of a monopole antenna is modified with good radiation characteristics suitable for a mobile handset. The modification is implemented by using different resonating structures which provides reduced radiation along one direction. The direction of less radiation can be changed by modifying the planar antenna structure to a ground folded antenna. This modified structure with excellent radiation characteristic is suitable for modern wireless handheld devices with less user RF interference. Specific Absorption Rate (SAR) is an important parameter for mobile handset. The SAR is estimated for the newly developed antenna for different conditions and discussed in this thesis.