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CHAPTER 1

1 INTRODUCTION

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Radar systems are generally used in determining properties, most commonly distance from a reference point of solid objects using single antennas or large antenna arrays. These antennas transmit and receive electromagnetic signals, which can be processed to obtain various relevant data. By using only one antenna and moving it along a linear axis to record an area of static objects, one can mimic a larger array of antennas to collect high-resolution data: this setup is known as a synthetic aperture radar system. The data collected from this type of radar configuration, after processing, is well-known for its detail and map-like quality and can be used to render a two-dimensional and three-dimensional representation of scanned area.

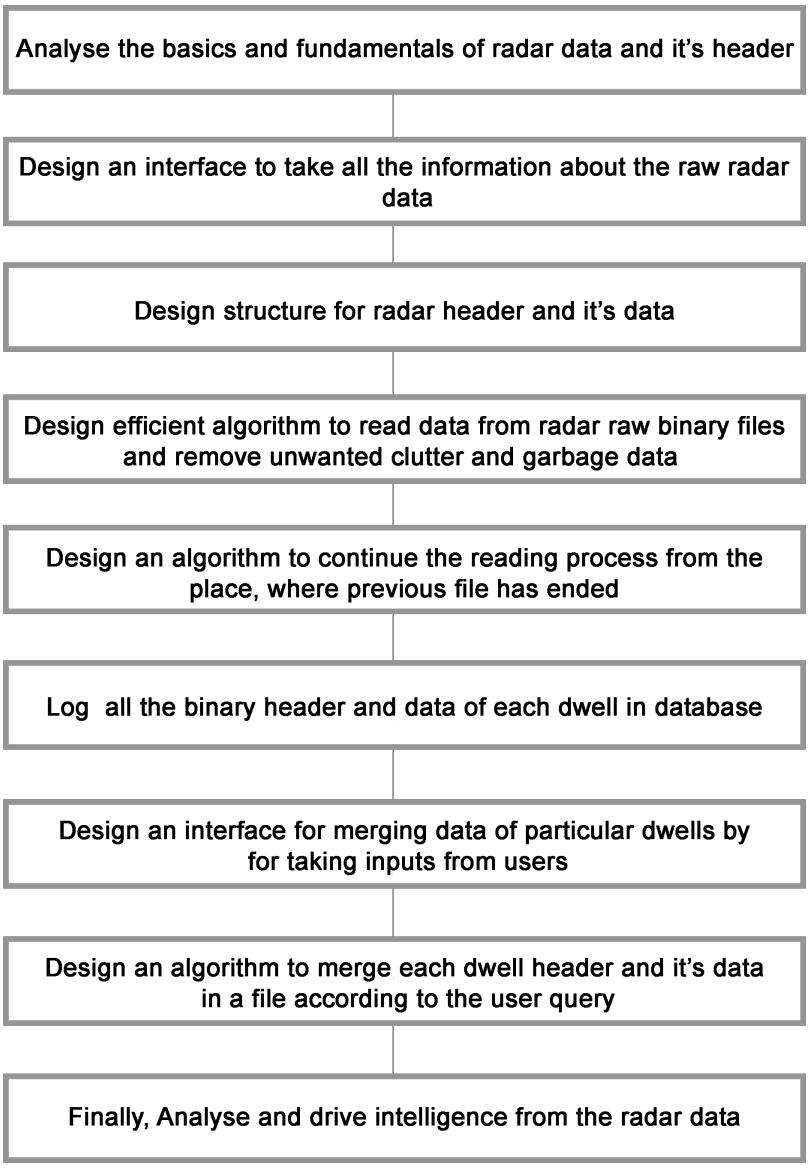

Figure 1: Steps involved.