CHAPTER 9
The Basis of Orbital Lifetime Prediction

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1. INTRODUCTION

Space is a constant source of exploration. Human hands had visited space decades ago, and as time went on, so did their thoughts. .The vision that changed the course of history - Satellites. The Soviet Union's October 4, 1957 launch of Sputnik 1 marked the beginning of human spaceflight. Later, numerous satellites are sent into Space for a variety of purposes. This contributed to a deeper comprehension of the amazing universe that lies beyond of our sight. Additionally, the average life span anticipated for a particular satellite is computed during the design phase of the satellite. To provide better coverage, the satellites are launched into a certain orbit. However, there exists a slightest chance that one could crash with any space debris or other satellite. Therefore, a greater understanding of how long space debris or any satellite would remain in orbit would provide a better understanding of any collisions with other satellites or space trash, thereby lowering the likelihood of such collisions in the future. Moreover, if the satellite's actual life span is shorter than its intended life span, this will have an impact on the operator's business model and partially prevent it from delivering its full functionality. However, if the satellite's lifespan is significantly longer than anticipated, this will also have an impact on the operators since it will