

Abstract

The system utilizes a crane mechanism to transport cars from a designated surface area to individual cells arranged in an $N \times M$ matrix configuration underground. The primary objective of this project is to provide a convenient and efficient parking solution for urban areas with limited surface parking space. The system includes an Admin web page that allows. The system automatically assigns an available cell for the car to park, optimizing space utilization and ensuring a parking space upon arrival. There will be sensors that are used to detect if there is a car that needs to park, and there sensors in each parking space (cell) to ensure that the car is parked successfully. The user will get a RFID card to park his car, also he will use this card to retrieve the car to the pickup point. The system will get the user car and park it in the closest empty cell, using this method, users can secure a parking space in advance without the need for specific criteria for selection.