



NETAJI SUBHAS UNIVERSITY OF TECHNOLOGY

PROJECT REPORT

AUTOMATED PARKING SYSTEM

ICE 2

Sensors and transducer

ICICC13

Submitted By:

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Introduction

Due to the rising number of vehicles on the roads, it is getting harder and harder to locate parking spaces in urban areas. Traffic clogs up as a result of how much time drivers frequently waste looking for a parking space. We have created a smart parking system that can assist drivers in finding a parking space swiftly in order to address this issue.

Project Overview

An Arduino Uno board, IR sensors, a servo actuator, and an LCD display are the components of the clever parking system project. The servo motor is used to move the gate up and down to permit or refuse entrance to the parking spot. The IR sensors are used to detect the presence of a vehicle in a parking space. The amount of parking spaces accessible is shown on the LCD display.

Materials Required

To build this smart parking system, we required the following materials:

- Arduino Uno board
- IR sensors (2 per parking spot)
- Servo motor
- LCD display
- Breadboard
- Jumper wires
- Power supply
- Custom circuit board (optional)

Problem Statement

The main goal of this initiative is to create a smart parking system that could assist drivers in finding open parking spaces quickly. During the course of this project, we encountered a number of difficulties, including integrating the various system components and accurately detecting the presence of a vehicle in a parking spot.

Challenges faced

Integrating the various system parts is one of the difficulties we encountered. We have to make sure that the servo motor, LCD monitor, and IR sensors all function in unison. The Arduino device needed to be carefully wired and programmed for this.

The system's various parts are integrated using an Arduino microcontroller. We have to create a code to read sensor data, move the gate up and down with a servo motor, and show the parking state on an LCD screen. To ensure the wiring is neat and orderly, we also need to create a unique circuit board.

We attempted to use a variety of sensors, but the majority of them were either overly costly or insufficiently accurate. After doing some study and testing out various options, we chose to use IR sensors.

It is difficult to calibrate the sensors to function in all lighting scenarios. We have to use two IR sensors per parking space, one on each side, to solve this problem. This enabled us to find a car even when it was positioned at an angle.

Circuit diagram

