



# ST. ANNE'S COLLEGE OF ENGINEERING AND TECHNOLOGY

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4.	Mr. S. Balabasker	Implementing Digital FIR Filter (using various windows) on DSP processor	
5.	Mr. R. Radhakrishnan		
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7.	Mrs. C. Suganya		
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9.	Mrs. D. Umamaheswari		
10.	Mrs. M. Vaidehi		
11.	Mrs. Mary Amala Jenni	Design and Implementation of Anti-Collision system to prevent Train Accident Dynamically Using Embedded System	National Conference on Research and Development in Science, Engineering and Technology, 2018 (37-44) ISBN: 978-93-5254-811-8
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13.	Mrs. M. Vaidehi		
14.	Mrs. Mary Amala Jenni	Frequency and Beam Reconfigurable Monopole Antenna Using VARACTOR Diode	National Conference on Research and Development in Science, Engineering and Technology, 2018 (141-147) ISBN: 978-93-5254-811-8
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17.	Ms. S.K. Suriya		
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## Internet of things Based Smart Car Parking System

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*Abstract – The increase in the number of vehicles leads to problem in vehicles parking at an appropriate place mainly the car parking which leads to traffic congestion. This is due to the fact that the current car park facility is unable to cope up with the arrival of large number of vehicles on the road. To solve this problem we propose a new idea “Internet of Thing Based Smart Car Parking System” which helps users to find a free parking space with the help of IoT. Our project uses Infrared sensor, Arduino Uno, ESP8266-01 Wi-Fi Module and Cloud server, It also lessens human effort at the parking area such as in case of searching of free slots by the driver and calculating the payment for each vehicle using parking area. Smart Car Parking System enables continuous monitoring and managing of available parking space in real-time thereby reducing the environmental pollution.*

**Index Terms— IoT, RFID, IR sensors, smart parking, slot allocation,**

### I. INTRODUCTION

Internet of things (IOTs) is a recent topic that plays an important role in our daily lives. IOT reduces human labor, effort, time and errors due to human negligence. With the development of modern technology, smart phones have become a necessity for every person on this planet. A smart parking system helps to monitor vehicle parking. It helps to manage parking collision among vehicles when they are parking at the same time that means it helps in synchronized parking. In IOT objects are connected to each other and exchange information from internet. Our IOT based smart parking organized the parking lot. It helps user to find a free space in parking slot. It saves user's time as well as their fuel. It helps nowadays to obtain parking spaces in metropolitan area which is very crucial. People waste money and fuel in searching for parking lot. Smart parking system gives information about parking spaces. An infrared (IR) sensor is used at each slot in parking; it tells the space availability. The information about the free or used slot sends over web page through IOT. Furthermore, we have other IOT platform like home automation, heart monitoring, any physical thing that is connected and exchanging information from internet. At present, Cisco is working very hard on IOT and probably up to year 2020 every appliance will be controlled by internet. Due to continue the growth of vehicle, it is difficult to find a parking place in a short amount of time and also it wasted a lot of fuel in searching an empty parking place. Hence, to overcome from this serious problem, we are implementing an automated parking where it can tell to user that parking space is available or not for his car. If slot is empty, they can go otherwise need search a new place instead of go and search for parking. In metropolitan area, smart car parking system becomes major point with rise numbers of

# Identification of Car Parking Slot availability Using IOT

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## Abstract:

*This paper focus on multilevel car parking system A using internet of things by sending the status of the parking slot to the internet. IR sensor and Arduino in combination with usagé of internet of things by sending the information to the mobile phone, laptops , LCD screens ,etc..The implementation of multilevel car parking system helps us for parking more number of cars with minimum space. Our proposed system deals with information about parking slot availability using IOT. Authentication card will provided for the each car so that the authorized can access the parking system .The advantage of multilevel parking are to solve the parking issue in the urban area and also provide the security to a car. It can be used in highly populated areas such as hospitals, schools, colleges, shopping mall, cinema halls, etc.,*

**Keywords:** *Internet of Things (IoT), Autonomous Car Parking, Arduino, ESP8266 Wi-Fi Module, IR Sensors, Servo motor.*

## I. INTRODUCTION

In this age of technology, we are working in a way to reduce our effort in every possible way and the introduction of the Arduino and IoT platforms have further broadened the scope of this possibility in our everyday lives. One of the major problems that we are facing in today's over-populated society is finding available parking spots in various public places like hospitals, office shopping malls, cinema halls, courts, schools and colleges.

The statistics show that approximately 20% of all the congestion in the city is caused by frustrated drivers driving around the block searching for parking spaces.

## II. PREVIOUS WORK

Various parking sensors are already installed in some of the public spaces in developed countries which use infrared sensors (hereinafter called as IR Sensors) to detect the presence of a car in a particular spot.

The motivation that drives the result is the pursuit of an alternative solution for the problem that is instead of using IR Sensors, it would be more efficient to switch to Ultrasonic Sensor which is not affected by variations in the light intensity in a particular environment. Also, instead of using the Ethernet shield or connecting it through LAN cable, a Wi-Fi module (ESP8266) is used. Thus, reducing the cost of cable, increasing the efficiency and making it more feasible to get implemented.

2.1 Using hardware: Indicators (in this case, two bulbs: 1 red and 1 green) are placed outside the parking slot, red bulb indicating an occupied parking space while the green bulb which indicates an empty space. This is done so that during the night time the driver can see from a distance that is the slot is empty or occupied.

2.2

2.3 Software (IoT): Before entering the place, the driver can check through the Internet/Mobile App that which slot or which area is empty and can directly go to that area and park his car, without anyone's



# Implementing Digital FIR Filter (Using Various Windows) on DSP Processor

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**Abstract.** *This Work focuses on design and implementation of Digital FIR Filters using Window method. For this various windows like Rectangular, Hamming, Hanning, Blackman, Kaiser Windows are used. Then the comparison of the features of these windows is done after implementing these filters on DSP Processor TMS320C50 of Texas Instruments. The advantages of Digital filters over the analog filters are like truly linear phase response, specifications of digital filters does not vary with environmental changes, the frequency response of digital filters can be automatically adjusted if it is implemented using a programmable processor, several input signals or channels can be filtered by one Digital filter without the need to replicate the hardware, filtered and unfiltered data can be saved for further use, performance of digital filters is repeatable, and they can be used at very low frequencies found in many applications where the use of analog filters is impractical. Also digital filters can be made to work over a wide range of frequencies by a mere change of the sampling frequency. Study involves Basics of Digital Filters discussed in Literature review. Architecture of TMS320C50 is discussed & MATLAB program is developed for calculating the filter coefficients. These are used in the assembly language program, which is implemented on TMS320C50 DSP Processor. Finally the comparison of features of above said windows is made based upon the obtained results. In future scope of the work, the adaptive filtering and its advantages are discussed. Also the finite word length effects and their remedies on FIR filter performance are discussed.*

## 1. INTRODUCTION

Filters are characterized as one of the most effective signal processing devices. Digital filters operate in discrete domain to attain the objective of filtering. Traditionally, most digital filter applications were limited to audio and high-end image processing. With advances in process technologies and DSP methodologies the implementation of digital filters is cost-effective. They have drawn attention of many researchers from the last few decades due to their enormous applications in engineering. In control engineering, digital filters are used for system stabilization, identification and modeling [1,2]. These Digital filters not only enriches the biomedical signals such as ECG, EEG, and MRI images but are also used in high-tech lifesaving machinery which are highly useful in medical industry [3–6]. In signal processing, many applications includes removal of noise/ interference, shaping of the signal spectrum [7] and many more. Lots of applications are encountered in the field of telecommunication with improved quality and economy of service provided by digital systems applications [8]. Design of an optimal filter is an important constraint of minimization problem wherein an ideal frequency response is approximated by a finite number of continuous functions. This approximation is computed in terms of difference between the two functions and the design

## Robust and Secure Video Steganography Using Matlab

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**ABSTRACT:** Steganography deals with hiding text, images or video within another text, image or video file. This project focuses on secure video steganography which eliminates any suspicion to the transmission of hidden messages. This is done based on multiple objects tracking (MOT) algorithm. The hiding process is performed by concealing the secret message of all motion regions in the video depending on foreground masks. Therefore, security and robustness are provided by encoding the secret message and withstanding against various attacks.

**KEY WORDS:** Video steganography, MOT, GMM, DWT, DCT

### I.INTRODUCTION:

Steganography literally means covered writing. Information hiding: Utmost importance in today's world. Embedding efficiency, hiding capacity, and robustness are the three major requirements incorporated in any successful steganographic method. Data security basically aims at preserving the confidentiality and integrity of protecting data from unauthorized user or hackers. Steganography is the art of invisible communication.

The purpose is to hide very presence of communication embedding messages in third person cannot sense the presence of hidden messages. While cryptography method to conceal information by encrypting it to cipher text using unknown key and transmitting to intended receiver, the steganography provides further security in hiding cipher text into other cover medium. To hide secret information in some other source of information without leaving is to hide information in a way that prevents the detection of hidden messages.

The word steganography comes from the Greek steganos, meaning covered and any apparent evidence of data alteration steganography technology can be used.so more amount of information hides in a single video. Data containing both the cover signal and the embedded information is known as stego data.

## FFT Approaches to Analyze the Periodic Characteristics of ECG Waveform

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### Abstract:

Digital Signal Processing (DSP) Applications have gained great popularity in the study of Bio-Medical Signal Processing .DSP can be used as a tool in the era of Bio-Medical Engineering and it is used to study the continuous rhythmic periodic waveform of ECG and finding out abnormalities present in the function of the heart.DSP solves this task with great accuracy and less complexity. According to available medical research report it has been given to understand the arrhythmias caused due to cardiac abnormalities. In this project we are going to present FFT approaches to analyze the periodic characteristics of ECG waveform and design spectrum of Angina Pectoris of ECG for identifying cardiac abnormalities.

### 1. INTRODUCTION

Application of signal processing methods, such as filtering, Discrete Fourier Transform (DFT), Fast Fourier transform (FFT) to biomedical problems, such as the analysis of cardiac signals (ECG/EKG).

The signal processing in digital is what we are considering to implement to our ECG signals as an extra function after we finish the basic objective of the project, which is only to design, simulate, fabricate, test, and demonstrate an ECG demonstration board in analog.

#### 1.1 DSP Techniques:

Digital signal processing and analog signal processing are subfields of signal processing. DSP applications include audio and speech signal processing, sonar, radar and other sensor array processing, spectral estimation, statistical signal processing, digital statistical signal processing, digital image processing, signal processing for telecommunications, control of systems, biomedical engineering, seismic data processing,

# Design and Implementation of Anti-Collision system to prevent Train Accident Dynamically Using Embedded System

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**Abstract** - Railway is the most popular and friendly transportation system of the largest part of the cities in the world. Train is widely used for comfortable and safe journey in a reasonable fare. People from different professions can effort it. Almost 10,000 billion freight tonne-Kilometers and more than 5 billion Passengers of rail transport have been travelled around the world per years. The railway transportation system plays an important role for business as well as for leniency and safe travelling in modern life. But at every turn, the train is facing unexpected situation in travelling because of wrong signal, wrong track switching, insecure level crossing etc. for which collision have been occurred. As a result, lot of damages has been done in economic sector with lot of causalities which affect our progress. But we can avoid this unexpected collision and take prevention from the accident dynamically by using the collision detection technology which can be made by ultrasonic sound with a special embedded system. By using this technology can detect the obstacle and gradually slow down the speed by initiating the air brake to stop the train before the collision takes place.

**Key Words:** Ultrasonic Sensor, Microcontroller board, Control Device, Alarm, DC Servo motor, Embedded System.

## 1. INTRODUCTION

Railway is the most popular and friendly transportation system in the world. Rail transports are facing major challenges in our day to day life. Rail transport systems first appeared in England in 1820s. From 1820-2016 many evolution is occurred. At present railways is one of the most widely used transportation system in the world. Approximately 10,000 billion freight tonne-Kilometres are travelled around the world every year and more than 5 billion

## Frequency and Beam Reconfigurable Monopole Antenna using VARACTOR Diode

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**Abstract**— A novel frequency and pattern reconfigurable monopole antenna is designed in this paper. The reconcilability is achieved by integrating an active frequency selective surface (AFSS) with feed antenna. A monopole Antenna is designed to illuminate AFSS, The smart FSS comprises a printed slot array loaded by varactors The Varactor diodes are placed in the AFSS such that the reconfigurable is achieved by switching on & off. The varactor diode the proposed design work at 2 different frequencies and power consumed is very less. Antenna design is other switches like PIN diode. A monopole antenna is designed to illuminate the AFSS. The resulting structure can operate in a frequency tuning range of 30%. By reconfiguring the different sections of active FSS cylinder into a transparent or reflector mode, the omnidirectional pattern of the source antenna can be converted to a directive beam. Experimental results demonstrate the capability of providing useful gain levels and good impedance matching from 1.7 to 2.3 GHz. The antenna offers a low-cost, low-power solution for wireless systems that require frequency and beam reconfigurable antennas. The proposed design consumes about 1000 times less dc power than the equivalent narrowband beam-switching antenna design using p-i-n diode-loaded AFSS.

**Index Terms**— Beam steering, frequency and beam reconfigurable, frequency selective surface (FSS), frequency tunable, reconfigurable antennas.

### I. INTRODUCTION

Future wireless networks are going to evolve to provide significant improvements, such as higher data rates, reduced end-to-end latency, and lower power Consumption. Most wireless systems employ multiple antennas, which can lead to increased hardware complexity, large size, high power consumption, and high cost. Reconfigurable antennas with the capacity to electronically alter their operating modes,

# An Adaptive Routing Protocol for extension of Lifetime and Coverage Area in WSN

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*Abstract- The particularities of Wireless Sensor Networks require specially designed protocols. Nodes in these networks often possess limited access to energy (usually supplied by batteries), which imposes energy constraints. Additionally, WSNs are commonly deployed in monitoring applications, which may in- tend to cover large areas. Several techniques have been proposed to improve energy-balance, coverage area or both at the same time. In this paper, an alternative solution is presented. It consists of three main components: Fuzzy C-Means for network clustering, a cluster head rotation mechanism and a sleep scheduling algorithm based on a modified version of Particle Swarm Optimization. Results show that this solution is able to provide an adaptive routing protocol that offers reduced energy consumption, while keeping high- coverage area.*

## Keywords

Particle Swarm Optimization, Fuzzy C-Means, Clustering, Lifetime

## 1. Introduction

(WSN) is usually used in the most varied applications such as environmental, industrial and process monitoring. They are formed by distributed sensing devices, commonly powered by batteries that at the end of their