An Innovative Approach to Virtual Reality

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Abstract:-- Virtual reality is a computer-generated environment that lets you experience a different reality. Virtual reality (VR) is a simulated information environment used in a growing number of applications. The aim in VR is to create an experience that mimics or resembles real life situations using a computer. People can try out and practice in a virtual world procedures that are complex, difficult, time consuming, expensive, and even dangerous. To date VR has found applications in the education, entertainment industry, building and engineering design, medical surgery, the tourist industry, advertising, food retail and others. While today's T.V and video productions got used to the benefits of virtual studio technology, the interaction between actors and virtual objects inside a virtual world remains challenging.

Keywords — Virtual Reality, Simulated Environment.

I. INTRODUCTION

The definition of virtual reality comes, naturally, from the definitions for both 'virtual' and 'reality'. The definition of 'virtual' is near and reality is what we experience as human beings. So the term 'virtual reality' basically means 'near-reality'. This could, of course, mean anything but it usually refers to a specific type of reality emulation. Virtual reality is the term used to describe a three-dimensional, computer generated environment which can be explored and interacted with by a person. That person becomes part of this virtual world or is immersed within this environment and whilst there, is able to manipulate objects or perform a series of actions.

Features of virtual reality systems

There are many different types of virtual reality systems but they all share the same characteristics such as the ability to allow the person to view three-dimensional images. These images appear life-sized to the person.

Plus they change as the person moves around their environment which corresponds with the change in their field of vision. The aim is for a seamless join between the person's head and eye movements and the appropriate response, e.g. change in perception. This ensures that the virtual environment is both realistic and enjoyable.

A virtual environment should provide the appropriate responses – in real time- as the person explores their surroundings. The problems arise when there is a delay between the person's actions and system response or latency which then disrupts their experience. The person becomes aware that they are in an artificial environment and adjusts their behavior accordingly which results in a stilted, mechanical form of interaction.

The aim is for a natural, free-flowing form of interaction which will result in a memorable experience.

The Virtual Reality Modeling Language (VRML) allows the creator to specify images and the rules for their display and interaction using textual language statements. VRML (Virtual Reality Modeling Language, pronounced vermal or by its initials, originally—before 1995—known as the Virtual Reality Markup Language) is a standard file format for representing 3-dimensional (3D) interactive vector graphics, designed particularly with the World Wide Web in mind.

A report from research firm Super Data shows the global virtual reality (VR) market will be worth $38 billion within three years, twenty times what it was in 2016. This year it will grow to almost $5 billion, up 168 percent from last year's $1.8 billion.

According to the report, this year revenue from VR software are expected to increase by $1 billion from 2016's $300 million. North America will be the fastest-growing market, expanding from $97 million in 2016 to $403 million this year. Asia will be the top VR software market at $430 million in 2017.

II.HISTORY OF VR

The idea of virtual reality (VR) has been around for a long time. Before computers were invented, even. The French playwright Antonin Artaudmentioned 'virtual reality' as far back as1936 (although he was speaking specifically about the theatre rather than technology). And a year before that in 1935, Stanley G. Weinbaum wrote of a goggle-based VR devicein his short story 'Pygmalion's Spectacles' – a whole 77 years before modern VR headsets likeOculus Rift were conceived.

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Average Bit Error Rate Performance for Underlay Cognitive Radio Network with Opportunistic Relaying

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Abstract-The Bit Error Rate (BER) Performance of Underlay Cognitive Radio Networks in the presence of Nakagami fading is thoroughly analysed in this paper. Cognitive radio system with interference constraint at the primary receiver (PR) is considered. Opportunistic relay selection is implemented at the primary network. When primary user (PU) is active, those secondary users (SUs) whose interference at the PR is above a threshold will amplify-and-forward PU's signal to enhance the PU's performance and those SUs below this threshold will proceed with their own transmission in an underlay fashion. As the number of relay SUs increases, the PU's performance will be improved, but it causes degradation of SU's (those below threshold) performance. This fundamental trade-off is quantified analytically using overall average BER. The results are verified in MATLAB, and their significance of Nakagami fading channel reduces the average BER of the system compared to Rayleigh fading channel.

Index Terms— Average BER, Cognitive Radio Network, Multi-User diversity Technique, Nakagami fading channel, Opportunistic relay selection.

I. INTRODUCTION

Cognitive radio is an adaptive, intelligent radio and network technology that can automatically detect available channels in awireless spectrum and change transmission parameters enabling more communications to run concurrently and also improve a radio operating behaviour.The case of multiple SUs with opportunistic SU relays selection in considered in [1].Opportunistic relay selection based on the highest end-to-end relay gain has been studied in cognitive radio setupof [2].In this paper we consider a cooperative underlay cognitive radio system with single PU and multiple SUs. For finding the average bit error rate the total L SUs are split into two groups based on whether they satisfy a predefined interference threshold at the primary receiver (PR).A subset of size M of a total N+M SUs that have interference less than acertain threshold will enter the underlay mode, among which multi-user diversity (MUD)is assumed to enhance SU network's performance. The remaining N SUs whose interference exceed the threshold will amplify and relay the PU's signal to mitigate the limited interference caused by the underlay SUs.AF relaying is assumed due to its practical simplicity and to maintain the PU's privacy by keeping the SU from decoding the PU's signal. With opportunistic relay selection, we assume that one out of N

SUs will relay PU's signal in exchange for the spectrum access in [3], and the average bit error rate for both PU and SU are studied. Hence, as the ratio $t = N/(N + M)$ increases, the desired SU relay can be selected from a larger number of potential candidates, which improves PU's performance. Meanwhile, this reduces the number of underlay SU candidates, and so deteriorates the underlay SU's average bit error rate performance.

The rest of the paper is organized as follows. Section II presents the System Model, Section III derives a closed form expression for the average BER of the PU and the opportunistic relay selection, and that of the selected SU. Section IV presents simulation results and Section V concludes our work.
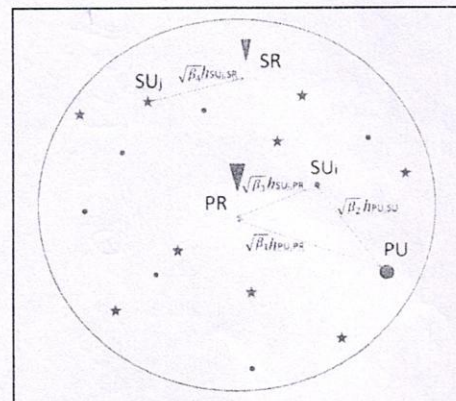

Figure 1.System Model of Cognitive Radio System

II. SYSTEM MODEL

A. Access Strategy

Consider an uplink cognitive radio system with L=M+N SUs, a single PU, a PR, and one secondary receiver (SR). The transmitters and receivers are assumed to be equipped with a single antenna as shown in "Fig. 1".

B. Description of the Relay Selection

The opportunistic relay selection is implemented at the primary network. A single SU out of the N SUs will be selected. Depending on which SU relay provides the largest end-to-end path gain between the PU and the PR,we adopt the cooperative diversity model in [4] so that during the

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61. DESIGN AND DEVELOPMENT OF COMPACT MICROSTRIP PATCH DUAL BAND ANTENNA FOR WIRELESS COMMUNICATIONS

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ROJA RAMANI EAGALA
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In this paper, a novel dual band microstrip patch antenna based on composite patch antenna and radiating part. By selecting a suitable offset feed position, it is feasible to provide 50 Ω characteristic impedance and thus making better impedance matching. The proposed antenna has been improved broader bandwidth by using RT Duroid substrate. The radiating part is plays a important role in creating a lower operating band (2.45 GHz) in addition to achieve miniaturization. The proposed antenna has to be fabricated with RT/Duroid substrate and dimensions of19X 22X 1.6 mm. The measured _10 dB andwidth of 200 MHz at 3.45 GHz and 990 MHz at 5.45 GHz, which is quite useful for Industrial, Scientific and Medical (ISM) and Wireless applications.

62.A SYSTEM FOR CHILD RESCUE FROM BORE WELL

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Bores yield water during drought. Hence more bore wells are drilled on the surface of the earth. When water gets depleted, the motor along with casing pipe are removed and the surface is left uncovered. As a result children fall into these abandoned bore wells and get trapped in them. It is a very difficult and risky process to rescue the child from the narrow hole of the bore well. Previously, the usual method followed is that the depth of the hole was found initially and later a parallel pit was dug to rescue the child. The digging process is expensive and time consuming. Any delay in the rescue process can cost the child his or her life. So the main objective is to design a portable system which is cost effective. It must also be capable of moving inside the narrow hole with the help of dc motors and operate according to the user's commands and avoiding any injuries to the body of the subject during the rescue process. Lack of visualization is the biggest difficulty in the rescue process. Therefore, a wireless night vision camera is attached to the system which aids in night vision. The entire system is controlled by controlled by Arduino Uno which helps in operating the dc motors based on the observations in the video streaming captured by the camera. The system also contains an Ultrasonic sensor to measure the distance at which the target is located, a temperature sensor and a gas sensor to measure the temperature and presence of any gas near the child along with water sensor to detect the presence of water. Control of the entire system is through Arduino Uno. On the whole this system can be named as a "Child Saver Machine" which helps in saving the child within a short period of time securely and without any difficulties.

VIBRATION CONTROL OF A SIMPLY SUPPORTED BEAM USING PIEZOELECTRIC PATCHES

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ABSTRACT- Any kind of vibration present in the machines and flexible structures are undesirable because it causes unpleasant noises, unwanted stress in structures, and malfunction or failure of the system. Now a day's Piezoelectric materials are used as sensors and actuators to control the system in terms of reducing the vibrations amplitude and frequency to improve the efficiency of the system. In the present work, a finite element model is developed for the vibration control of beams with distributed piezoelectric actuators. Smart beam considered in the analysis is modelled in simply supported configuration with piezoelectric patches bonded symmetrically on the top and bottom of the beam. The Static, Modal and Harmonic Analyses were performed using the finite element analysis software ANSYS to determine the displacements of a Piezo single layer subjected to Voltage, strain values, fundamental modal frequencies and amplitude of vibration for a simply supported beam made of different materials with patches at different locations. The optimum locations and number of actuator pairs are identified based on the amplitude of vibrations from harmonic analysis.

KEYWORDS: *Piezoelectric patch, vibration control, FEM, ANSYS*

1. INTRODUCTION

Piezoelectric materials exhibit the property known as a piezoelectric effect which results from the coupling between the electric and mechanical properties of a material. When a strain is applied to a piezoelectric material an electric field is produced (direct piezoelectric effect) and conversely when an electric field is applied strain occurs (converse piezoelectric effect). Due to the direct or converse piezoelectric effect, these materials can be used in the design of many devices working as sensors or actuators, respectively. For this reason, piezoelectric materials are a primary concern in the field of smart-structure technology. When a piezoelectric patch is attached to a damaged structure, the electro-elastic deformation of the piezoelectric patch induced by an applied voltage can help the structure to resist to the crack opening. This idea can be called as "active repair" in comparison with tradition bonded repair or passive repair. The piezoelectric material is used not only as an actuator to prevent crack propagation but also as a sensor to measure the crack opening displacement. Piezoelectric materials have received much attention in vibration control of structures in recent years because Piezoelectric ceramic materials have mechanical simplicity , small volume , light weight , large useful bandwidth , efficient conversion between electrical energy and mechanical energy , and easy integration with various metallic and composite structures. The active vibration control problem with a two-degrees of freedom system is given byHKaragulle*et.al.*(1).S. B. Choi*et.al.*(2)discussed about the vibration control responses of an electro rheological (ER) damper system subjected to temperature variation and time delay. C.M.A. Vasques*et.al.*(3)discussed about the one-dimensional finite element of a three-layered smart beam with two piezoelectric surface layers and metallic core is utilized. A partial layer wise theory, with three discrete layers, and a fully coupled electro-mechanical theory is considered. MelinSahin*et.al.*(4)discussed the smart structures considered in these analyses are finite and flat aluminium cantilever beam-like (called as a smart beam) and plate-like (called as smart fin) structures with surface bonded lead–zirconate–titanate patches.Zhi-chengQiu*et.al.*(5)discussed the problem of phase hysteresis and time delay caused by the non-collocated sensor/actuator pairs is considered. K Ramesh Kumar*et.al.*(6)discussed the optimal placement of collocated piezoelectric actuator–sensor pairs on flexible beams using a model-based linear quadratic regulator (LQR) controller.FayazR.Rofooei,*et.al.* (7)discussed the governing differential equation of motion for an undamped thin rectangular plate with a number of bonded piezoelectric patches on its surface and arbitrary boundary conditions is derived using Hamilton's principle.Levent Malgaca(8)discussed the direct velocity feedback (DVF) control is tested on a 3-DOF mechanical system under a step input.J. Ducarne,O.Thomas*et.al.*(9)discussed the geometry of piezoelectric patches as well as their placement on the host elastic structure. Paul murugan j *et.al.* (10) discussed the basic ideas of electrical-mechanical coupling in terms of analytical expressions with unique notations, stiffness matrix for coupled field element.Lalit R. Shendre et.al. (11)discussed about the ACV the vibration of a structure is reduced by using an opposite directional force to the structure.

2. PROBLEM STATEMENT & METHODOLOGY

The objective of the present work is to analyse a simply supported beam made up of different type of materials such as aluminium, brass, magnesium and titanium using piezoelectric patches at different positions. In this analysis different pairs of PZT patches are used to study the Active vibration control. First, the simply supported beam is modelled in the ANSYS and the

An Empirical Analysis of Members Perception on Empowerment after Joining in SHGs

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Abstract — Micro Finance is emerging as a powerful tool for poverty alleviation in the economy. In India, micro finance scene is dominated by SHG-Bank linkage Programme as a cost effective mechanism for providing financial services to the 'unreached poor'. Self-help groups (SHGs) have emerged as an effective mechanism of empowerment as well as being an efficient mode of technology dissemination. Micro finance programme has a positive impact both on economic and social empowerment of women members along with reduction in poverty. The relevance of SHGs as powerful instruments of social, political and economic empowerment of women has also been unanimously accepted in many studies. There are many studies have been conducted on empowerment of women in self help groups across the country from time to time. This paper sheds a light on Members perception on empowerment after joining in SHG's in Eluru.

Keywords — Micro Finance, Self Confidence, Decision Making Skills, Economic improvement.

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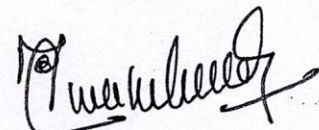
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TRENDS IN ADVERTISING: INFLUENCE ON CONSUMER BEHAVIOR

Sudheer Kumar J S
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Introduction

Advertising is an actual presentation of the message through a medium or channel with an intention to promote a product or service. Several companies often seek to increase the rate of consumption among consumers with their commercial advertisements and through effective branding. Advertising also helps the employees and other stakeholders reassure that they are viable/ successful in doing their business.

During 19th century, Thomas J Barraff from London has been named as the Father of modern advertising. When he was associated with Pears, he created an effective advertising campaign involving the usage of targeted slogans, images and phrases. He also focused more on the significance of the strong and the exclusive brand image, evaluation of changing tastes and preferences of consumers, which of those ideologies of him are now in practice.

It leads to the growth of advertising, eventually the mail-order advertising these days. Slowly companies started encouraging their employees to exchange their ideologies, habits favoring the company in rightly advertising. The role of women in advertising is very important these days. As a house hold or employed women plays a vital role in creating-demand for products or services. These days, Companies are critically analyzing about the way how they can influence the mindset of woman in promoting their products. Advertising is thus a communication of ideas and impersonal. It is mainly targeted at the mass audience which includes varied mindsets.

There are several reasons why advertising is done. Some of them are as follows:

➢ Promoting and increasing sales of a product or service
➢ Creating a brand identity for their products and services
➢ Maintaining the company brand image with celebrity endorsement
➢ Attracting audience about the product or service that is being introduced
➢ Communicate about the change in the company's existing product line

Advertising medium

There are traditional mode of advertising such as Radio, Television, print and electronic media, telephone, etc., but the modern mode of advertising lies with Internet based i.e., websites/blogs, social media, e-mail, mobile. Selecting a medium in conveying the message depends on the type of product or service the company would like to promote and the target audience to whom the message has to be reached. It is one of the big challenges for the companies to select a medium through which they can communicate.

The companies also follow various marketing strategies apart from advertising in their product/service promotion through other channels such as:

o Direct marketing by using mediums like post cards, telephone, email to maintain one-to-one interaction, e-mail campaigns
o Public relations in person through traditional and new media channels

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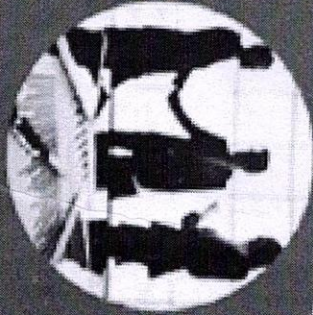
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TIDAL HYDROPOWER GENERATION AND ITS EFFICIENT UTILIZATION

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ABSTRACT

Tidal energy is one of the oldest forms of energy generation. It is a renewable form of energy that converts the natural rise and fall of the tides into electricity. Tidal vitality, otherwise called tidal power is a sustainable type of hydropower where the active or potential vitality of the tides are utilized for the age of power. A tide is made by the gravitational impact of the sun and the moon on earth, subsequently causing repeating development of the oceans, prompting the tides. Since the world's tides are at last because of the gravitational powers between the sun, the moon and the earth, tidal vitality is for all intents and purposes boundless; along these lines getting arranged under sustainable power source. Tidal power is the main innovation that attracts vitality inborn the orbital attributes of the Earth-moon framework, and to a lesser degree in the Earth-sun framework. Tides are caused by the combined effects of gravitational forces exerted by the Moon, the Sun, and the rotation of the Earth. Tidal energy presents an evolving technology with tremendous potential. However, it can only be installed along coastlines. Coastlines often experience too high tides and two low tides on a daily basis. The difference in water levels must be at least 5 meters high to produce electricity. Our proposed system deals with production of power based on vertical plates which produces more power in less tide states.

Keywords: Tidal Power, Earth-moon framework, hydropower

1. INTRODUCTION

Tidal Energy or Tidal Power as it is likewise called, is another type of hydro control that uses a lot of vitality inside the seas tides to create power. Tidal Energy is an "elective vitality" that can likewise be classed as a "sustainable power source", as the Earth utilizes the gravitational powers of both the moon and the sun regular to move immense amounts of water around the seas and oceans delivering tides. As the Earth, its Moon and the Sun turn around one another in space, the gravitational development of the moon and the sun regarding the earth, makes a large number of gallons of water stream around the Earth's seas making occasional moves in these moving waterways. These vertical movements of water are designated "tides".

1.1 Tidal Effects of the Sun and Moon

At the point when the earth and the moons gravity lines up with one another, the impacts of these two gravitational powers turns out to be extremely solid and makes a great many gallons of water move or stream towards the shore making a "high tide" condition. Moreover when the earth and the moons gravity are at 90o to one another, the