Implantation of ARM7 algorithm for Embedded Systems

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Abstract-

In this paper, we focus on design of algorithm which deals with the allocation of channel to the primary user whenever it comes to its own channel without making them to wait and also the CR should move to the other free channel. The classical rendezvous results are not appropriate for cognitive radio networks as they are unable to adjust to the dynamic behavior of the primary network and, also unable to avoid interference to the PUs. Earlier discussed solutions assume that after achieving the rendezvous of a node pair over a given channel, they carry out the entire data packet transmission over that channel. There is no method to vacate the band of spectrum if there is an appearance of a PU. In our channel hopping algorithm, the hopping sequence for the CR users is fixed and uses the most recent sensing results by allowing the exchange of data over the channels with the lowest PU activity. Contributions of this work are summarized as follows.i) New algorithm giving immediate priority to PUsover CR users: channel hopping algorithm is proposed to achieve immediate allocation without letting the PU wait to get back its assigned channel from CR user. ii) Move the CR user to some other vacant channel inminimum possible time: a ranking table is built to identify the channels which are available, based on the PU activity on each channel is used where the channels are ordered according to the PU activity.

Keywords-Cognitive radio networks, spectrum sensing, ranking table and MANETS

INTRODUCTION

In present days, the use of wireless communications is highly increased thereby the usage of spectrum is also high. To use the spectrum in efficient way, cognitive radio has become prominent technology, which gives the dynamic access to the spectrum. The main advantage of cognitive radio is to increase the spectrum utilization and increasing the quality of communication. Cognitive radio networks (CRNs) has been recognized as a promising technology to address the problem of spectrum under-utilization.It does so by detecting the unused portions of the spectrum known as spectrum holes and uses that portion for transmission without causing any interference for the licensed users [1,2].

Inthe context of CRNs, the owner of the licensed channel is known as Primary User (PU) and the other users of thechannel are known as cognitive radio (CR) users or secondary users. Each CR user is equipped with one ormore cognitiveradios, which are capable of opportunistically identifying vacant portions of the spectrum and hopping between them without causing interference to the PUs of the spectrum. Cognitive radio users should vacate the channel whenever the owner of the channel returns i.e.; PU to protect from harmful interferences.

To exchange the necessary information, spectrum management and useful data communication, CR users should detect the presence of each other to establish the communication links. Two or more radios of users meet and establish a link on common channel which is known as “Rendezvous” [3]. Some previous work on the topic refers to this process as “neighbor discovery” rather than rendezvous [4]. Rendezvous is a basic and important operation in CRNs. Several CH algorithms have been proposed in the recent literature [5, 6, 7, 8, 9, 10]. These schemes have considered Time to Rendezvous (TTR) w.r.t. number of channels for evaluating the performance. However, these works have one or more of the following limitations: i) robustness to PU activity; ii) allocation of a free channel to CR users in case of PU return iii) not

applicable to rendezvous of multiple users. The rest of this paper is organized as follows. In Section II we present our proposed method. In Section III, Channel Hopping Algorithm is discussed. Simulation is conducted in Section IV. We conclude our work in section V. II. PROPOSED METHOD We consider the co-existence of PUs and CR users in the samegeographical area. PUs are licensed to use a fixed spectrum, which can be divided into a set U= {1, 2. . . C} of Cnonoverlappingorthogonal channels. For simplicity, we assume that all channels have the same capacity. CR users can access licensed bands if they do not interfere with ongoing PU transmissions.

RELATED WORK

Now a days, a lot of researchers attempted different types of algorithms on brain images in data mining.Lakshmi DevasenaandHemalatha 2011 developed LIM Based matching algorithm with The Discrete Cosine Transform technique for capering new image with existing images of datasets.SharvariTamane 2008 applied a Content Based Image Retrieval method using High Level Semantic Features on images. Geetha and Vasumathi Narayanan 2008, proposed A Survey of Content-Based Video Retrieval method on brain images for finding the tumour positions in brain .McMurray, T. Pearce, J.A. 2002 applied a new Theoretical and experimental comparison method of the Lorenz information measure, with entropy concept of data mining, and founded a mean absolute error values in images. theygiven detailed information about Lorentz Information Measurement in economics this LIM Technique is applied on wealth distribution to different parties for equality of distribution.

To prevent interference to PUs from CR users, CR users should vacate the channel as soon as PU returns on its assigned channel. Therefore a ranking table as in isproposed where channels are ranked on the basis of PU activity detected on each channel. A node performs spectrum sensing periodically after a time out and the period of the sensing cycle is assumed to be equal to the sum of the sensing duration and the time out period. The sensing results are used to build a ranking table of the available channels based on the PU activity detected on each K Shekar et al. ISSN: 2250-3676 [IJESAT] [International Journal of Engineering Science & Advanced Technology] Volume-5, Issue-2, 186-191 187 IJESAT | Mar-Apr 2015 Available online @ http://www.ijesat.org channel. Therefore, channels are ordered based on the PU activity.

The channels are ranked from top to bottom. Towards bottom, PU occupied channels are placed whereas towards top free channels are placed. The process of making ranking table is summarized in Fig. 1. In Fig. 1(a), we have shown that periodic sensing capable of sensing spectrum opportunities using either energy detectors, cyclostationary feature extraction, pilot signals, or cooperative sensing is performed to get the information about the vacant channels and occupied channels. Fig. 1(b) shows the ranking table after getting results from periodic sensing. The metric to evaluate the reallocation mechanism i.e. to reallocate a channel to CR user is expected time (Texp) which is definedas the expected time of getting a free channel when a PU returns on its assigned channel.

As we have ranked channels in a ranking table, the algorithm proposed here will decide the common hopping sequence for the CR users. We have divided the ranking table into two portions and set a threshold level at channel number C/2. Below it we have assumed that the probability of PUs activity is maximum and above it CR usersactivity is maximum (according to ranking table). The CH sequence that CR users will follow has to take this threshold level into consideration. Then we have set another level at channel number 3C/4 and assumed that the probability of CR users activity above it is maximum and below it is minimum. These two levels and assumptions are the foundation of the channel hopping algorithm. In the next section we will discuss the algorithm.

Patients are suffering to identify the position of tumours in Brain. By brain imaging techniques only we can easily identify the diseases. Brain image analysis is possible by X-Rays, CT scans, PET Images, MRI Images, fMRI Images. MRI and fMRI images give detailed

information about patient's brain and these are available in Digital Imaging and Communications in Medicine (DICOM) format. It contains detailed information of brain as a multimedia images.

Meningiioma [4] is a one of the Brain tumour that can easily damage the brain function and spinal card in a skull. From the radiation effect and genetic disorders of nervous systems human can get this type of tumours. In National Brain Tumour society of US a research work is going on meningioma [2].

Communication problems, lack of feeling, weakness in arms and legs, Vision problems,Recurrent Headache are the symptoms of this type of brain tumour. But it is slowly increasing tumour in brain and it is very difficult to identifying this position.

In this paper we are using different types of Mining methods to identify this tumour by comparing the new brain image with existing images. Generally we have different type of brain imaging techniques. MRI brain images are the input for this proposed topic

From the dataset, By using the following MATLAB Code[5] we can easily read the JPEG image files in a dataset

```
% Preallocate the 256-by-256-by-1-by-20
image array.
X = repmat (int16 (0), [256 256 1 20]);
```

Figure 02: 3-D array with the image data and a plot of the MR slices appears

Apply the same above process and read all the images from a 6 dataset S and store all new images As a JPEF images with 256 by 256 sizes.

DESIGN AND METHODOLOGY

HISTOGRAM TECHNIQUE

In this paper we have to identify the similarities between new brain images with Meningioma patient brain images .first we are applying histogram technique [9] on new brain image. We are applying the following MATLAB code on the new human brain image. After Appling below code on the new brain image then we can get output. the output image is shown in the Figure 04.

After reading the all images of dataset we can apply same histogram concept on all images then we can get histograms of all images [1].

IMAGE MATCHING TECHNIQUE WITH LIM

Actually, The Lorenz information Measure (LIM) [1] method is belongs to economics subject. It is developed by Max O Lorenz in 1905 and is used to presenting variation of assets allocation. Mr.Rorvigfirst said that use of general features extracted from the images for retrieval and represented as LIMs. in this paper we are using this concept as to extract the general features of image. This method (P1,….,Pn) is used to be the area under the LIM Curve[6]. The value of this method is in between 0 to 0.5. the given image's histogram intervals are arranged from low to high, and the resulting off-diagonal shape measured through differentiation. The Histogram intervals are arranged are arranged from low to high and the resultant curve [10] represents the difference between the two images.

When we want to apply our concept then first of all we have to take one new image with some background knowledge that contains the patient's sex, age. Then we are easily selecting our exact dataset because we have 6 types of datasets. Then we have to generate the gray scale image of a patient from the DICOM file of a patient,

Then we can generates the black and white histograms of new image and similarly we have the black and white histograms of all datasets. Then we can create the address of new image and create the address of all images in dataset. Then we can match the address of new image with existing dataset's all images if any matches are identifying in between new image and existing image. Then we can select the existing image then automatically we have the background knowledge of existing image so we can easily identify the position of new image. So we can easily identify the patient condition

INPUTS:

1. New Unknown MRI Scanning Brain image.
2. 5 Meningiomatumour's brain images of male and 5 images of female and their age in between 1 to 15.
3. 5 Meningiomatumour's brain images of male and 5 images of female and their age in between 16 to 44
4. 5 Meningiomatumour's brain images of male and 5 images of female and their age in between 45 to 100

ALGORITHM

1. Read the new MRI scanning image.
2. Create the data base with the existing Meningiomatumour's brain images
3. Generate the gray scale image from 1.
4. Apply 1 and 3 steps on entire database
5. Generate the black and white histograms for new file image

CONCLUSION

The traffic monitoring system based on embedded Web technology possesses low power consumption, High integration, real-time efficiency, and easy scalability. Also, it is able to effectively manage the increasing complexity of system resources, and makes some hardware virtualization. When this project idea implementated commercially will result efficient monitoring and control using embedded web technology. Tests were carried out to determine system performance and as the result suggest were quite satisfactory. The experimental result shows that a sustained near- realtime system can be setup with the web browser. It easily makes the system flexibly to be assembled, replaced, and upgraded. Therefore important savings in investment and an increase of benefits are for the traffic monitoring system based on embedded Web technology

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