

# IMPROVING THE CONNECTIVITY OF AD HOC COGNITIVE RADIO NETWORKS USING SCHEDULING AND QUEUING

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**Abstract:** *The objective of this project is to improve the connectivity of Ad Hoc Cognitive Radio network using the temporal traffic dynamics with Scheduling and Queuing. In this first set the primary and secondary users. These users are requesting for data. Queuing will be done based on the service requirement. Scheduling will be done based on calculating the distance and according to the data type. Apply the temporal traffic and establish the connection. The connection between the two users is based on the transmission range. So find the traffic of two users and find the distance. After finding the distance, identify the type of data. Finally establish the connection between the primary and secondary users. In addition this project proposes the queuing in CR set-up.*

**Keywords:** *Cognitive Radio, Temporal Traffic, Scheduling, Queuing.*

## I. INTRODUCTION

Cognitive radio expertise is the key expertise that enables a CRAHN to use spectrum in a lively manner. A “Cognitive Radio” is a means of communication that can change its spreader parameters based on interface with the environment in which it operates. Cognitive radio (CR) set-up can be classified as the transportation-based CR set-up and the CRAHNs. The transportation-based CR set-up has a central network unit such as a base station in cellular set of connections or an admission point in WLAN. On the contrary, CRAHN do not contain any connections backbone. The cognitive radio user can connect with new CR consumer through ad hoc connection on authorized and unauthorized spectrum bands. Connectivity is one of the fundamental perceptions of graph theory: it asks for the smallest amount of joints or edges that need to be detached to separate the remaining joints from each other. Scheduling is the method of deciding which tasks are to be carried out based on time or length. Scheduling is also a method by which threads, procedures or information flows are given admittance to structure resources. Queuing examines every part of waiting in line to be served, including the arrival method, service method, number of servers, number of system places. Queuing is also a series of stored data or programs awaiting processing.

## II. METHODOLOGY

### A. Primary Users and Secondary Users

Consider a cognitive radio network with a primary client and set of secondary clients where the wireless link among the primary client and the secondary client occurs shadowing

fading, and acts as a cooperative relay for all clients in the CR set-up are equipped with a particular aerial and the aerial at any user can be utilized equally for transmission and reception.

Primary User:

A user who has higher priority or legacy rights on the usage of a specific part of the spectrum.

Secondary User:

A user who has a lower priority and therefore exploits the spectrum in such a way that it does not cause interference to primary users.

### B. Request Data

After network initialization set the primary and secondary user. The priority to be selected each primary and secondary users. First select the 2 random values for each primary and secondary user. The primary user requests the user data and the secondary user request the user data.

### C. Temporal Traffic

A topological link exists between any two secondary users that are surrounded by each other's transmission series. The topological links in the secondary set-up are free of the primary set-up. The continuation of a connection link between set of secondary users confide in not only on the distance. So find the traffic of two user's and find the distance.

### D. Scheduling

#### Distance Calculation

After finding the traffic, the distance will be calculated for primary and secondary user. First give the transmitter ID, User Id and distance value. To give the x and y value for distance finding. The primary and secondary distance calculated using below formula.

$$D = \sqrt{(X_p - X_s)^2 + (Y_p - Y_s)^2} \quad (1)$$

#### Type of Data

CR users are usually supposed to not to have any real-time dealings with the transmitters and receivers of the primary user, they do not identify the correct information of the partial transmissions within the primary set-up. Thus, Primary user recognition confides on the only local radio scrutiny of CR users. Usually, PU finding techniques for CRAHN scan is of three groups: crucial transmitter and receiver recognition and intrusion temperature supervision transmitter finding is based on the finding of the weak signal from a crucial transmitter through the local scrutiny of CR

users. The primary receiver finding aspire at ruling the primary clients that are receiving information in the connection range of a CR user. This same way the secondary user data to be find.

#### E. Queuing

Queuing will be done based on the service requirement. In this it will give priority to the nodes which have not transferred data many times.

#### F. Connection Establishment

The one way links are hard to use for applications with definite delivery that require acknowledgments, we only consider one way links in the secondary set-up when we define connectivity.

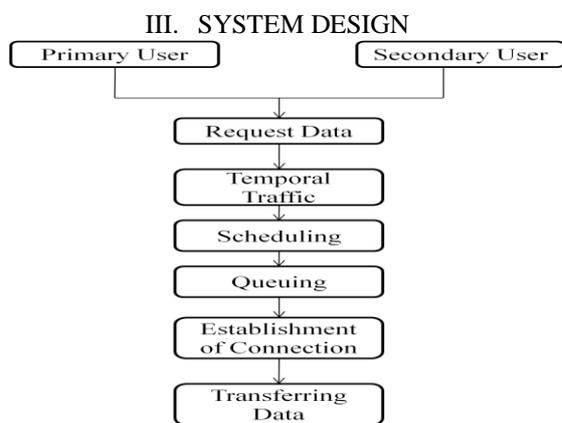


Fig: 1 Block Diagram

#### IV. CONCLUSION

From this project, the connectivity between the primary and the secondary users in the radio networks are given during the traffic time in an efficient way. It improves Capacity by incorporating both Scheduling and Queuing. It can produce a higher efficiency and takes only a small amount of time for transmitting the data in the networks.

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