**Distributed Topology Construction of Bluetooth Personal Area Networks**

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**Introduction:**

This paper addresses the topology creation topic of ad hoc networks. The researchers have used Bluetooth network to establish communication when the nodes have little to no knowledge of their surroundings. They have termed this technique as Bluetooth Topology Construction Protocol (BTCP). They have analyzed the roles of master and slave units in frequency hopping sequences to make larger node to node connections via bridge nodes. The large ad hoc network created using these connections is termed as Scatternet.

**General Performance of paper**

All the key terms used by the authors in this paper are properly defined. For example: they have described all about Bluetooth technology, Scatternet, Frequency hopping etc. and finally discussed in detail about their BTCP methodology. The paper is well organized with very few grammatical errors. So the paper is not much difficult to comprehend. The use of English is correct, clear and concise with very little spelling errors.  
  
The principal claim made by the author is addressing the problem of disconnected nodes in a network through the creation of a distributed topology. Their claim is justified since the paper focuses on Bluetooth link formation in creating a connected graph for disjoint nodes. The actual result of the paper has been evaluated using the metric of connection establishment time. They have indicated that network connection setup delay is within acceptable limits from their experiment. The main result is novel because it is the first approach designed to tackle the construction of topology in a frequency hopping environment controlled by Bluetooth. Several techniques were used to support the authors claims. The BTCP protocol was evaluated using a conference scenario. The delay of network formation was within acceptable range. The Scatternet network had many connected nodes while ensuring the timeout is less making the BTCP protocol a fast protocol.   
  
The best feature of the paper is the way the experiments are designed with the proper description of the key terms. One of the flaws of the paper was the insufficient analogy of their BTCP technique with other contemporary techniques. I think the paper could be largely improved if it makes a comparative analysis with other similar techniques. Also, they can do a better job illustrating the figures with more discussion. In future, they want to extend their protocol for different use cases like when all of the nodes are in various communication range where connection establishment becomes tricky.

# Analytical Results

# The theorem of devising a Bluetooth protocol for establishing connection among disjoint nodes is properly stated. The authors have provided appropriate justification in their methodologies for the implementation of the proposed theorem. Moreover, the evaluation metrics justify the theorem’s validity.

# Simulation Results

The parameters like number of nodes, Random Backoff Delay (RBF), timeout, Frequency Synchronization Delay (FCS) are properly described and the connection among them is established in their design experiment. The simulation results are presented using graphs, histograms and box plots. Their experiment has been done for a large number of nodes and I think this experiment can be repeated with the same parameters by applying them in a different environment.

# Experimentation

The authors implemented all of the system discussed and they are quite interesting. Because it’s a novel approach in solving the topology construction problem in disjoint nodes. The results of the experiment provide justification for the authors claims. The only downside I would say is the lack of comparison with other techniques and the insufficient description of the figures in the paper.