

Auto-Chan: Automatic Channel Selection for Wi-Fi Networks

Product Offering

Researchers from Dublin Institute of Technology have developed a novel automated channel selection technology for WLAN that ensures user Quality of Service on busy Wi-Fi networks.

Auto-Chan improves the use of available bandwidth by minimising data packet loss due to node congestion, and removes the need for a central controller to assign channels. This results in an autonomous network that incurs no management overhead or signalling.



Competitive Advantages

- **Optimised Bandwidth Usage:** The technology ensures that all nodes within a network are accommodated with minimum congestion.
- **No-Central-Control-Requirement:** Channel selection is determined by the local monitoring of each node within the network, meaning a central controller is not required.
- **No Overheads or Signalling Requirement:** Channel selection is independent and does not require any inter-node communications and signalling for operation.
- **Network Stability:** The process incorporates a guard period to prevent network instability and is fully compliant with IEEE 802.11 WLAN network standards.
- **Scalability:** The technology can be easily scaled to accommodate various levels of demand placed on wireless networks.

Industrial Applications

This technology will be of interest to enterprise equipment vendors operating in the WLAN space. It is an ideal solution for locations with dense network access points prone to congestion, such as sports stadiums, concert venues, airports and transport interchanges.

Commercial Opportunity

DIT Hothouse is seeking a suitable commercial partner to take this innovative new technology to market.

Increasing demand for wireless connectivity is placing increasing pressure on WLAN networks to accommodate users. Areas of crowd congestion such as concerts and sporting events in particular are becoming more susceptible to network failure as a result of overcapacity. This technology therefore presents a significant commercial opportunity for network vendors to address this growing concern and ensure quality of service for their customers.

DIT Hothouse offers excellent commercial terms to licensees on technologies developed through DIT research.

Auto-Chan: Automatic Channel Selection for Wi-Fi Networks

Stage of Development

A prototype has been developed, tested and executed in order to validate the proof of concept. Demonstration software is available and the technology is patent-pending.

Technology Description

This technology uses an autonomous dynamic channel selection algorithm concerned with the local monitoring of WLAN bandwidth usage. The process involves driving neighbouring nodes into saturation in order to force them to switch to another channel within the network.

By moving neighbouring nodes to another channel, the node in question can return to its higher data transmission rate, preventing network congestion and ensuring user quality of service.

Project Team

The technology was developed through research undertaken by DIT's Communications Network Research Institute (CNRI).

The project team is led by:

- **Dr. Mark Davis (Principle Investigator)**

Dr. Mark Davis is the Principal Investigator and project director at the Communications Network Research Institute (CNRI) at the DIT. The main theme of the research carried out at the CNRI is the delivery of QoS for real-time services such as VoIP telephony and video streaming. The CNRI has developed a number of tools for estimating user satisfaction with VoIP and streamed video applications, as well as a patented application for managing the bandwidth on WLANs



Intellectual Property

The Intellectual Property associated with this technology was created in Dublin Institute of Technology and is patent-pending.

Next Steps

If you would like to learn more about this technology or discuss commercial opportunities, please contact:

**Paul Maguire, Licensing Executive, DIT Hothouse on
01 402 7002 or email paul.maguire@dit.ie**



Hothouse

where business meets innovation

DIT Hothouse is the award winning Innovation and Technology Transfer Centre based in Dublin Institute of Technology. Hothouse leads the consortium responsible for commercialising research from DIT, IT Tallaght, IT Blanchardstown, IADT and National College of Ireland.

Hothouse draws in entrepreneurial and academic talent, ignites creativity and provides a dynamic environment to fast-track businesses and technologies to commercial success.