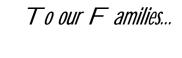
## الحديث

عن ابي الدرداء رضي الله عنه قال: سمعت رسول الله صلى الله عليه وسلم يقول: (من سلك طريقًا يَطلُبُ فيه عِلْمًا سلك الله به طريقًا من طُرُق الجَنَّةِ، وَإِنّ المَلائِكَة لتَضَعُ أَجْنِحَتَهَا رضًا لِطالِبِ الْعِلْم، وَإِنّ الْعَالِمَ لَيَسْتَغْفِرُ له من في السموات ومَنْ في الأرض وَالْحِيتَانُ في جَوْف الماء، وَإِنّ فضل الْعَالِم على الْعَابِدِ كَفضلُ الْقَمَر لَيْلة الْبَدْر على سائِر الْكَوَاكِبِ، وَإِنّ الْعُلْمَاءَ وَرَتَّة الْأَنْبِيَاء، وَإِنّ الْعُلْمَاء وَرَتَّة الْأَنْبِيَاء، وَإِنّ الْعُلْمَاء مَن أَخَذُه أَخَذُ بِحَظٍ وَافر)

الْمُنْبِيَاءَ لم يُورَتُوا دِينَارًا ولا دِرْهَمًا، ورَتُوا الْعِلْمَ قَمَنْ أَخَذُهُ أَخَذُ بِحَظٍ وَافر)



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#### **Abstract**

Mobile communication technology aims to provide the seamless continuous connection to access various wireless technologies and to maintain this connection with the best quality of service (QoS). To achieve this goal a good decision making algorithm should be considered to decide the best QoS for its service. Handover decision making algorithm aims to provide best QoS and best user satisfaction by using different handover parameters. In this thesis the Receive Signal Strength and Signal to Interference and Noise Ratio together with the bandwidth management matrix were used in the decision making.

MATLAB was used for the evaluation of handover decision making algorithm. The results showed that as the distance increase for one user the RSS decrease in WLAN and CN. The simulation also showed that as the number of users increases the handover probability decrease due to limited resource of the selected network. It was also noticed that as the number of users increases the blocking probability increase due to the available limited resources. The results also showed that as the number of available bandwidth unit (bbu) increases the blocking probability decreases.

#### المستخلص

تهدف تكنولوجيا الإتصالات المتنقلة إلى توفير إتصال سلس مستمر للوصول إلي مختلف التقنيات اللاسلكية والحفاظ علي هذا الإتصال مع أفضل جودة للخدمة. لتحقيق هذا الهدف لمحطة متنقلة عند الإنتقال من شبكة إلي اخرى لابد من وجود خوار زمية إتخاذ قرار جيدة والتي تقرر ما إذا كان هذا المستخدم يحتاج إلى الإنتقال من شبكة إلي أخرى, وتقرر كذلك أفضل جودة للخدمة سواء كانت هذه الخدمة بيانات أو صوت. وتهدف خوار زمية اتخاذ قرار الانتقال لتقديم أفضل جودة للخدمة وأفضل رضا للمستخدمين عن طريق الجمع بين عدة عناصر (شدة الإشارة المستقبلة،النسبة بين الإشارة والضجيج والتداخل، والتكلفة...الخ) وخوار زميات إدارة عرض النطاق الترددي.

تم إستخدام الماتلاب لتقييم خوارزمية إتخاذ قرار الإنتقال. أظهرت النتائج أنه مع زيادة المسافة لمستخدم واحد تنخفض قوة الإشارة المستقبلة، كما أظهرت المحاكاة أنه عند زيادة عدد المستخدمين تنخفض إحتمالية إنتقال المستخدمين للشبكة الجديدة وأيضا زيادة عدد المستخدمين يزيد من إحتمالية قطع الإتصال بسبب الموارد المحدودة مثل عدد المستخدمين المتاح وعرض النطاق الترددي. وأظهرت النتائج أنه عند زيادة عدد وحدات النطاق الترددي تنخفض إحتمالية قطع الاتصال.

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## **List of Abbreviation**

3G: Third Generation

3GPP: Third Generation Partnership Project

AP: Access Point

BE: Best Effort

BS: Base Station

CN: Cellular Network

ERTPS: Extended Real-Time Polling Services

GSM: Global System for Mobile

ITU: International Telecommunication Unions

LAN: Local Area Network

MS: Mobile Station

MSC: Mobile Station Center

MT: Mobile Terminal

NRTPS: Non-Real-Time Polling Services

OFDMA: Orthogonal Frequency Division Multiple Access

QAM: Quadrature Amplitude Modulation

QoS: Quality of Service

R<sub>BS</sub>: Base Station Data Rate

R<sub>AP</sub>: Access Point Data Rate

RSS: Received Signal Strength

RTPS: Real Time Polling Services

SINR: Signal to Interference and Noise Ration

TDMA: Time Division Multiple Access

UGS: Unsolicited Grant Service

UMTS: Universal Mobile Telecommunication System

VHD: Vertical Handover Decision

VHO: Vertical Handover

VOIP: Voice over Internet Protocol

WAN: Wide Area Network

WCDMA: Wideband Code Division Multiple Access

WLAN: Wireless Local Area Network