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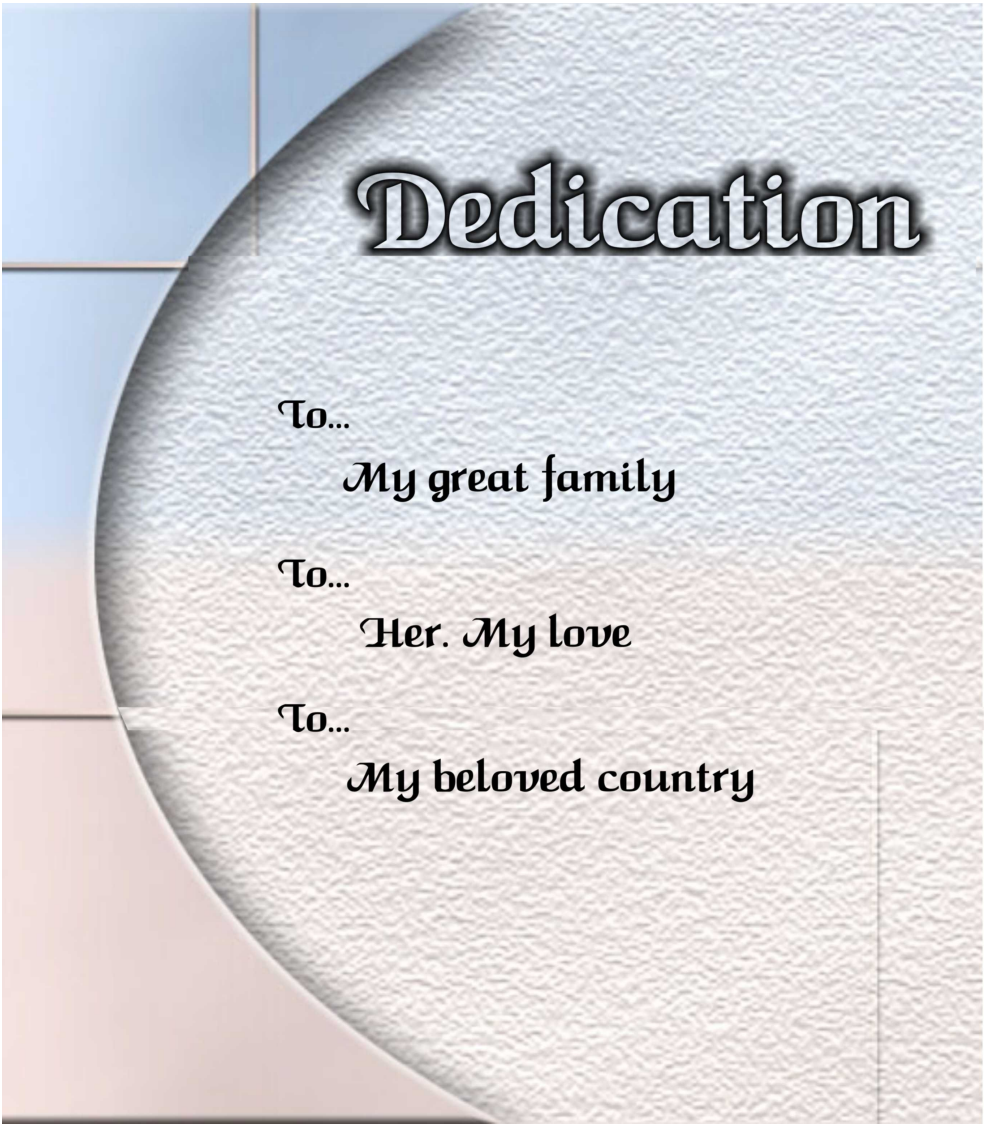
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Abbreviations

1	3G: Third generation mobile systems
2	IMT2000: international mobile telecommunications
3	WCDMA: Wideband code division multiple access
4	AMPS: advanced mobile phones services
5	GSM: group special mobile
6	CEPT: European conference of postal and telecommunication administration
7	PDC: personal digital cellular telecommunication system
8	TDMA/ FDD: time division multiple access/frequency division duplex
9	DSSSS: Direct sequence code division multiple access
10	VSELP: vector–sum excited linear prediction
11	QSELP: quadratic –sum excited linear prediction
12	RPE: Regular pulse excited predictive coding
	LTP: long term predictive coding
	LPC: linear predictive coding
13	QPSK: quadrature phase shift keying
14	OQPSK: Orthogonal quadrature phase shift keying
15	GMSK: Gaussian minimum shift keying
16	HLR: Home location register
17	VLR: Visiting location register
18	V-MSC: visited mobile switch center
19	H-MSC: Home mobile switch center
20	BS: Base station
21	MS: Mobile station
22	TPC: Transmit power control
23	SF: Spread factor
24	QOS: Quality of service
25	IP: Internet protocol
26	4G: fourth generation mobile telecommunication
27	PDA: Personal digital assistant
28	SOHO: Small office home office
29	UMTS: Universal mobile telecommunication system
30	TFT : Thin-film transistor
31	PIXEL: picture element
32	CMOS: Complementary metal oxide semiconductor
33	USB: Universal serial bus
34	LI-ION: lithium ion
35	GPRS: General packet radio system

36	UE: User equipment
37	ACS: Adjacent channel selectivity
38	BER: Bit error rate
39	3GPP: third generation partner ship project
40	AFC: Automatic frequency control
41	NIMH: Nickel metal
42	BPSK: Binary phase shift keying
43	HPSK: hybrid phase shift keying
44	WAP: Wireless access protocol
45	CPU: Control processing unit
46	DSP :Digital signal processing
47	LCD: Liquid crystal display
48	LED: light emitting diode
49	STN: Super twisted nematic
50	PC: personal computer
51	IrDA: Infrared data association
52	MPEG-4: moving picture expert group
53	AMR: Adaptive MultiRate
54	PA: Power amplifier
55	RF: Radio frequency
56	IC: Integrated circuit
57	NF: Noise factor
58	LNA: low noise amplifier
59	MF: Modulating frequency
60	LSI: Large scale integration
61	PN: Pseudo-random code
62	SNR: signal to noise ratio
63	A/D: Analog to digital converter
64	TDD: Time division duplex
65	MP3: Moving picture
66	VCO: Voltage control oscillator
67	VGA: Voltage gain amplifier
68	PLL: Phase lock loop
69	LO: local oscillator
70	SSB: single side band
71	PICH: pilot channel
72	PI: pilot signal



Dedication

To...

My great family

To...

Her. My love

To...

My beloved country

Acknowledgement

This acknowledgement is due to my supervisor Dr. ashraf for his helpful and considerable guidance, for this valuable assistance and achievement, for the production of this piece of study.

Thanks for my family ,relatives and friends who stand beside me though they are missing my support .

I would like to thank every body contributed to the success of this research. Eng. Abdin moh. Yahia who's been great help providing references, eng. Moh. abdrahman whose discussions been so effective to make clear the ideas

.

Abstract

Due to its improved capabilities for mobile communication, power consumption in 3G phones acts a major role that affects overall system performance. Therefore, the research viewed the problem of power optimization in 3G phones. The focus is to highlight the high power consumption in the system and its background and enlight the technologies and suggestions to solve this problem.

Chapter one "introduction" briefly reviews the various cellular systems: analog and digital systems including W_CDMA systems .also the main problems of 3G mobile systems are stated in this chapter beside the objective of the research.

Chapter two "the power consumption in 3G phones" gives some view of 3G phones ,its characteristics , capabilities, its power consumption and the factors that lead to the high power consumption. Chapter three "power saving technologies " discussed some examples of power saving technologies that is applied to 3G terminals.

Chapter four "power optimization via soft handover control" highlighted the role of handover process on power consumption .some experiments are carried to determine battery capacity at various modes of operation .at the end of this chapter , simulation of power consumed at handover ,and the results are plotted. In chapter five "conclusion" we stated the results of the research. we see that we can optimize power consumption via control of handover power by minimizing handover duration or handover rate .

التجريد

نسبة لما يمتاز به نظام الجيل الثالث للاتصالات المتنقلة من خصائص عالية وإمكانات متعددة، يعتبر استهلاك الطاقة من العوامل الأساسية التي تؤثر على فعالية وكفاءة هذا النظام بكامله. لهذا قامت هذه الدراسة ببحث مشكلة استهلاك الطاقة في هواتف الجيل الثالث المتنقلة وكيفية أمثلتها. ركز البحث على إضاءة هذه المشكلة وخلفيتها والأسباب التي تقوم عليها وتعرض للتقنيات والاقتراحات التي تستخدم وتقدم لمعالجة هذه المشكلة. يقدم الفصل الأول **(المقدمة)** استعراضاً مبسطاً لمختلف أنظمة الاتصالات النقالة ابتداءً من الأنظمة التماثلية إلى الرقمية بما فيها نظام الدخول- المتعدد المتمايز- التشفير واسع-النطاق (wide band code division multiple access).

كما تطرق الفصل إلى بعض المشاكل التي تواجه نظام الاتصالات المتنقلة من الجيل الثالث، وتم تحديد الهدف الرئيس من هذا البحث.

الفصل الثاني (استهلاك الطاقة في هواتف نظام الجيل الثالث المتنقل) قدم شرحاً لأجهزة هواتف الجيل الثالث وإمكاناتها وخصائصها واستهلاك الطاقة العالي فيها والعوامل التي تتسبب بذلك. أما الفصل الثالث (التقنيات المستخدمة لتقليل استهلاك الطاقة في هواتف الجيل الثالث) فقد ناقش نماذج من التقنيات التي تزود بها والمستخدمه لترشيد استهلاك الطاقة في هذه الهواتف وأجهزة النظام الطرفية .

في الفصل الرابع والمعنون بأمثلة الطاقة عبر التحكم في التنقل المرن لهواتف الجيل الثالث، قدم البحث توضيحاً لدور عملية التنقل في استهلاك الطاقة في أنظمة وهواتف الجيل الثالث المتنقل. تم إجراء بعض التجارب لتحديد السعة والزمن التشغيليين لبطارية الهاتف في الأوضاع المختلفة. في نهاية هذا الفصل تم عمل تمثيل لاستهلاك الطاقة عند عملية التنقل بواسطة برنامج الـ MATLAB وتم اخذ الرسومات الناتجة .

في الفصل الخامس (الخلاصة) ، تم استعراض نتائج البحث . ولقد توّصّح انه بالإمكان أمثلة وترشيد استهلاك الطاقة في أجهزة هواتف الجيل الثالث المتنقل عبر التحكم بعملية التنقل ، وذلك بتقليل المدى الزمني لاكمال عملية التنقل أو تقليل معدل حدوث عملية التنقل نفسها.

