

Sudan University of Science and Technology

College of Graduate Studies

التشويش على منظومة
الرادار وجهاز الهاتف الجوال

RADAR AND MOBILE PHONE JAMMER

*A thesis submitted for partial fulfillment
of M. Sc. In communication*

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Approval Page

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Thesis Title ... Radar and mobile
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قال تعالى :

II

أَلَمْ تَرَ كَيْفَ فَعَلَ رَبُّكَ بِأَصْحَابِ الْفِيلِ { 1 } أَلَمْ يَجْعَلْ
كَيْدَهُمْ فِي تَضْلِيلٍ { 2 } وَأَرْسَلَ عَلَيْهِمْ طَيْرًا
أَبَابِيلَ { 3 } تَرْمِيهِمْ بِحِجَارَةٍ مِّن سِجِّيلٍ { 4 } فَجَعَلَهُمْ
كَعَصْفٍ مَّأْكُولٍ { 5 }

صدق الله العظيم

سورة الفيل الآيات (1-5)

Dedication

To all those who I am ready to move mountains, for the people who filled my life with never ending love and unselfish giving I dedicate this humble work to:

My family

-To my father who is the backbone and supporter.

- To the soul of my mother the greatest woman on earth for being that burned to light up my life.

- My brothers for being there in times of need.

- And last but not least, my friends, for all the unforgettable memories we've shared.

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Abstract

To interfere with enemy air/surface defense radar, there are many ways can be used but there are two fundamental ways, jamming and deception and each may be implemented in many ways, the one we consider is:

- 1) Radiate active signals to interfere with the radar.
- 2) Change the electrical properties of the medium between the aircraft and the radar.
- 3) Change the reflection of the aircraft

On the other hand for mobile jamming, the last few years have witnessed a dramatic boom in the wireless communications industry, hence, increasing the number of users of mobile communication devices.

Although the mobile communication is good, some times had been bad effect in some places such as in mosques, church, class rooms. Exam rooms, training centers, meeting rooms, hospitals sleeping rooms, busses, theaters, libraries, and other places where silence is expected.

So that mobile jammer is been considered in this project so as to disable the mobile from establishing call, in places where mobile makes disturbance.

In this section of my project, a aims to find a solution for the problem by using simple electronic circuit with low cost and good durability and less power consumption for health issue.

التجريد

هنالك العديد من الطرق المستخدمة للتشويش على جهاز الرادار وبالتالي

تضليل المستخدم من ناحية تحديد الهدف بالصورة المثالية .

طريقة التضليل (الخداع) وطريقة التشويش هما من الطرق الأساسية

المستخدمة وتؤدي بعدة طرق منها :-

(1) إرسال إشارة بنفس قيمة تردد الرادار .

(2) تغيير حالة الوسط الكهربائية (الموصلية) بين الرادار والهدف .

(3) طلاء الهدف بمادة لتغيير انعكاس إشارة الرادار .

أما من ناحية الهاتف الجوال ، فقد شهد مؤخراً تطوراً كبيراً في تقنياته

المتعددة وكثير مستخدميه بإيجابياته وسلبياته المختلفة .

ومن سلبيات الهاتف الجوال استخدامه في مواقع يعتبر استخدامه فيها أحياناً معوقاً

للأداء في تلك المواقع كما في المساجد والمكتبات العامة وقاعات الدراسة وقاعات

الاجتماعات والمستشفيات ... الخ .

لذا حاولنا التقليل من هذه السلبيات وذلك باستخدام إشارة تشويش بنفس

تردد الهاتف الجوال من خلال دائرة مذبذب بسيطة وقليلة التكلفة تعمل على قدرة

ضعيفة تجنباً للآثار السلبية على صحة الإنسان .

Abbreviation

ASR	: Air Surveillance Radar
SMR	: Surface Movement Radar
ECM	: Electronic Counter measure
EA	: Electronic Attack
ECCM	: Electronic counter counter measure
EP	: Electronic Protection
RF	: Radio Frequency
ADC	: Analog to Digital Converter
DSP	: Digital Signal Processing
RADR	: Radio Detection And Ranging
LCD	: Light Cathode display
CRT	: cathode Ray Tube
PPI	: Plan Position
2DR	: Two Dimensional Radar
MFR	: Multi Function Radar
MTTR	: Multi Target Tracking Radar
PRR	: Pulse Repition Rate
PRF	: Pulse Repition
CW	: Continuous Wave
VHF	: Very High Frequency
EHF	: Extra High Frequency
EW	: Electronic Warfare
EMP	: Electronic Measure Protection
SSJ	: Self Screen Jammer
SOJ	: Stand Off Jammer
ARM	: Anti-Radiation Radar
HOJ	: Home On Jammer
TWS	: Track While Scan
ESM	: Electronic Support Measure
MTI	: Moving Target Indicator
AJ	: Anti Jamming
CFAR	: Constant – False – Alarm Rate
PCS	: Public Central Switch
CDMA	: Code Division Mltiple Access
GSM	: Global System Mobile

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