

---

## *Thanks*

*First of all we thank God Almighty for allowing us to complete this modest work, and I thank my mother, my father and my family who helped me financially and morally*

*First, we thank Mr. M.BRAHIMI precious for his help, his availability and encouragement throughout the duration of our project.*

*To all our teachers to everyone who contributed, directly or indirectly in the realization of this work, we tell them thank you very much.*

---

---

# Contents

## General Introduction

1. Motivation .....	1
2. Problem specification .....	1
3. Objectives.....	2
4. Structure.....	2

## CHAPTER 01: Mobile devices

1. Introduction.....	3
2. Characteristics of mobile phones.....	3
3. Operating Systems for Smartphones.....	4
3.1. Android from Google .....	4
3.2. BlackBerry OS from RIM.....	5
3.3. iOS from Apple.....	5
3.4. Symbian.....	5
3.5. Windows Phone from Microsoft.....	6
4. Software Development for Smartphones.....	6
4.1. The SDK.....	7
4.2. The (Software-) Emulator.....	7
4.3. The IDE.....	7
5. Conclusion.....	8

## CHAPTER 02: The Peer-To-Peer technology

1. Introduction.....	9
2. What is P2P.....	9
3. Client/Server Architecture.....	10
4. P2P Network Architectures.....	11
4.1. Centralized Architecture.....	11
4.2. Decentralized Architecture.....	12
4.3. Hybrid Architecture.....	13
5. Resource Discovery.....	14
5.1. No discovery.....	14
5.2. Direct Discovery.....	14
5.3. Indirect Discovery.....	15
6. Why Peer-to-Peer networking.....	15

---

6.1. Distributed computing power.....	15
6.2. No single point of failure.....	15
6.3. Distributed search.....	16
7. Popular Peer-to-Peer Protocols.....	16
7.1. Napster.....	16
7.2. Gnutella.....	17
7.3. Freenet.....	17
8. Conclusion.....	18

## **CHAPTER 03: Adobe AIR and RTMFP**

1. Introduction.....	19
2. Adobe Flash Player.....	19
3. Adobe Integrated Runtime AIR.....	20
4. Cirrus service.....	20
5. RTMFP.....	21
5.1. Difference between RTMP and RTMFP.....	21
5.2. Using RTMFP with Flash Player 10.....	22
6. What's new with RTMFP, Flash Player 10.1, and Cirrus 2.....	23
7. Conclusion.....	28

## **CHAPTER 04: A Peer-To-Peer prototype based on RTMFP**

1. Introduction.....	29
2. Operating environment of the project.....	29
3. Exposition of the problem.....	30
4. Architecture of the system.....	30
5. Design and modeling.....	31
5.1. Functional modeling.....	32
5.1.1. The use case of the system.....	32
5.1.2. Description of the diagram.....	32
5.2. Static modeling.....	33
5.2.1. Class diagram.....	33
5.2.2. Description of the diagram.....	33
5.3. Dynamic modeling.....	35
5.3.1. The sequence diagram.....	35
5.3.2. State-transition diagram.....	37
6. Conclusion.....	38

---

## **CHAPTER 05: Implementation and exploitation**

1. Introduction.....	39
2. The deployment diagram.....	39
3. Presentation of the system.....	40
4. Algorithmic solution of tasks of peer.....	41
4.1. Procedure to update the shared space.....	41
4.2. Search procedure, browse and download documents.....	42
4.3. Programming the algorithms of the tasks.....	43
4.4. The work tools.....	43
4.4.1. ActionScript.....	43
4.4.2. Adobe Flash Builder.....	44
4.5. Launch of the application.....	44
5. Conclusion.....	47

### **General conclusion and Future Research**

1. General conclusion.....	48
2. Future research.....	48

<b>References</b> .....	49
-------------------------	----

---

## List of Figures

Figure 1 - Client/Server Architecture.....	10
Figure 2 - Centralized Network Architecture.....	11
Figure 3 - Decentralized Architecture.....	12
Figure 4 - Hybrid Architecture.....	13
Figure 5- P2P point-to-point topology.....	23
Figure 6- Managed data delivery using peer-assisted networking.....	26
Figure 7- Application-level multicast.....	27
Figure 8- Distributed data storage.....	27
Figure 9- Exposition of the problem.....	30
Figure 10- General architecture of the system.....	31
Figure 11- Use case diagram.....	32
Figure 12- Class diagram.....	34
Figure 13- The sequence diagram of sharing.....	35
Figure 14- The sequence diagram of the search, download and browse.....	36
Figure 15- Sequence diagram of the Chat.....	36
Figure 16- State-transition diagram.....	37
Figure 16- State-transition diagram.....	39
Figure 18- Presentation of the system.....	40
Figure 19- Procedure to update the shared space.....	41
Figure 20- Search procedure, browse and download documents.....	42
Figure 21- Home page.....	44
Figure 22- The page of sharing the file. ....	45
Figure 23- Select Player.....	45

---

---

Figure 24- The search page. ....	46
Figure 25- The browse page. ....	46
Figure 26- The chat page.....	47

---