

## The Holy Quran Digitization: Challenges and Concerns

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**Abstract:** Quran is the sacred, the most authentic, and unchanged book of the God since its revelation over 14 centuries. People usually read Quran using the traditional printed version on paperback format called *Mushaf*. The recent advent of smart technologies like smart phones, digital devices and tablets has collected the daily life routines under a single touch and Muslims are adopting these new tools with an exponential growth. In this paper, we highlight the challenges and concerns Muslim community has relevant to the digitization of the Holy Quran. A survey was conducted to explore the trends and adoption of technology using digital and smart devices for reading and learning Quran in the Muslim community. In addition, it was also endeavored to identify that how Muslims feel important or mandatory to have an Islamic body to monitor and endorse the digital versions and copies of the Holy Quran available in the digital format. The paper is supported by tactful survey results and analysis extracted from 17 questions and 668 responses from different parts of the world.

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### 1. Introduction

The era of the technological age is upon us, people communicate in seconds with e-mails and other online/digital means. Information of every type is accessible over the Internet through different digital means to anyone, anywhere and anytime. The digital age has revolutionized the world of communications and transformed societies, economies, and private lives of billions of people. The Internet, mobile phones and related smart technologies have rapidly spread to all parts of the world even people who do not have access to the Internet are indirectly affected by this rise of technology.

The presence of Islam on the Internet is very impressive where Muslims have been using the Internet for everything imaginable and in all different aspects of life from spreading their religion to educating themselves about their religion and communicating with each other. According to "Internet World Statistics" the Internet usage has increased five folds since 2000 emphasizing the fact that technology is penetrating societies very rapidly as well as it has a great impact on societies. According to the Internet World Statistics (2012), the number of Internet users as of March 2012 exceeded 2 billion that means approximately 30% of the world population uses the Internet. With the largest growth of Internet usage noticed in the Middle East, which shows an increase of approximately 2000%, in addition approximately 25% of Muslims use the Internet.

According to a survey conducted by the international telecommunication Union, the number of mobile phones to 100 people seems to increase rapidly as it is noticed that in some countries the number of mobiles per population of 100 exceeds 100 ([www.nationmaster.com](http://www.nationmaster.com), 2012). According to BBC Measuring the Information Society 2010, the number of mobile phones in 2010 exceeds the 5-billion figure where the population for the world has reached more than 7 billion in November 2011, which means that over 70% of the population on this earth are using mobile technology ([www.bbc.co.uk](http://www.bbc.co.uk), 2012). This shows how much we are relying on technology in our daily lives.

Muslims have been using the Internet for online education, Quran memorization/learning, Quran teaching, online businesses, banking, socializing, politics and communication (Razaly,2010; Elhadj, 2010; Al-Yahya et al., 2011; Muhammad et al., 2012). Bundles of excellent Islamic websites have appeared over the Internet and so did many websites spreading false Islamic ideologies about Quran and Islam. Therefore, the lack of a controlling authority to provide standards and guidelines for Muslims using the Internet lead to many problems and so is the issue with the Quran and attempts to create unauthentic and fake copies, such as the True Furqan.

The study performed by Tayan and Alginahi in 2009, investigated the use of ICT technologies combined with software applications for propagating and teaching the Quran, in addition it

evaluated the effectiveness of digital technologies for serving the Holy Quran. The study was distributed through email and received 38 responses only; the survey analysis revealed that almost 80% of participants had used various technologies for assisting in Qur'an memorization. The participants were evenly distributed concerning the appeal of online or portable technologies as compared with traditional methods. It also showed that participants over 50 shared the opinion that technology is more appealing to the younger generation. Finally, the analysis provided suggestions for new applications and improvements to the existing technologies in order to further enhance the user access and experience with Islamic propagation and teaching resources (Tayan and Alginahi, 2009).

The rest of the structure of this paper is as follows: Section II presents the motivation and objectives of this work, Section III describes the research methodology, Section IV addresses the survey results (analysis and evaluation), Section V elaborates on the Quran applications available through smart devices and Internet websites. Finally, Section VI concludes the paper and provides future directions.

## 2. Motivation and Objectives

The motivation behind this work rose from the fact that almost all of our daily activity is being transferred from the traditional approach to the smart environment. From a normal daily physical exercise to complicated Business Intelligence handling, all is being accomplished by using hand-held digital devices like smart phones, tablet PC(s) and other devices. Similarly, people are shifting to electronic or smart devices to read/recite their religious books rather than using a regular paper printed book. Millions of Muslims are also using smart devices to recite Quran and other religious material, which is easily available through websites.

This inspired and motivated us to perform a general survey, which was distributed electronically around the globe in order to know the level of awareness of digital and smart devices usage among Muslims for reciting and learning the Quran in digital format.

The primary objectives behind this study are;

- To know how people of different age group and nationality, use technology in learning/reciting the Quran.
- To know how much people feel reliable while reciting an online source of the holy book
- To know whether people prefer reading an online version of the Quran or on paper

- To know the reasons behind not reading the holy book on a digital device
- To know the awareness of Muslims towards the fake Quran availability in the market
- To know the observation of different age group and nationalities about the importance of an international Islamic monitoring body to validate and scrutinize the digital versions of the Holy Quran

## 3. Research Methodology

A semi-structured questionnaire survey in both Arabic and English was distributed in an electronic format. The survey was conducted to discover the primary objectives outlined in the previous section. Before the survey was conducted it was piloted to ten subjects and five interviews were conducted. The participants were asked to review and comment on the clarity of the survey. Following this, the semi-structured survey was designed as a tool for data collection. The participants were encouraged to give any comments they feel are relevant to the study. This survey study was also supported by a phenomenological approach with semi-structured interviews carried out with some participants in order to consolidate some of the findings that were observed from the surveys. Emails were distributed to contacts of the authors who are mainly individuals working in higher-level academic institutions all over the world. The response to the survey was overwhelming where a total of 668 responses were received between Sept 22 and Oct. 18, 2012. Table 1 shows the questions asked in the survey. All the questions were multiple choices except for the last question that asks the user for any comments or suggestions the person may have. Also few questions required some written responses depending on the answer chosen, these questions are marked asterisks (\*, \*\*, or \*\*\*) in Table 1. Table 1 lists all the questions used in the survey showing the statistics of the people corresponding to each question.

## 4. Survey Results (Analysis & Evaluation)

In this section, the survey results are presented and analyzed. The total number of people participated in this survey was 668. The ratio of males to females participating in this survey was 58.6: 41.4, respectively. From Table 2 it was noticed that 93.6% of the participants are between the ages of 18 and 49. The results also prove that the users with age group of 21-29 are the widely users of smart technologies worldwide. On the other hand, the survey failed to reach people in the group ages below 20 and above 60, this could be attributed to the fact that the survey was mainly distributed to academics at universities and most of their contacts are other

academics, students, friends and relatives. Therefore, this confirms with the objective of the survey to investigate educated people who are exposed to

different forms of digital technology such as personal computers, smart phones, tablets, and all sorts of portable digital gadgets.

**Table 1: The List of Questions Used in the Survey**

Question No.	Question Statement	Answered Question	Skipped Question	Percentage Answered
1	Age Category	668	0	100%
2	Gender	659	9	99%
3	Nationality/place of residence *	648	20	97%
4	How often you recite Quran?	638	30	96%
5	How do you prefer reciting the Quran?	634	34	95%
6	Do you prefer reciting Quran on a Mobile device or a digital device?	632	36	95%
7	Which OS (Operating System) is supported by your mobile?	626	42	94%
8	While reciting Quran on-line or on mobile application, do you have the feelings of uncertainty if the digital version of Quran is fake, tampered or has typing mistakes?	614	54	94%
9	If you do not read the Quran from digital devices, What is the reason for not reciting the Quran on a digital device? *	606	62	92%
10	Do you think that the digital copy of the Quran available on a digital device is authentic?	600	68	90%
11	Do you prefer reading a digitally signed and 100% authentic copy of the Quran on-line and/or through mobile applications? *	594	74	89%
12	Do you prefer reading a digitally signed and 100% authentic copy of the Quran on a digital device? *	583	85	87%
13	Have you ever come across a fake\containing errors version of Quran available on-line?	582	86	87%
14	Do you agree that it is unavoidable and necessary to have an authentic Islamic body monitoring and endorsing the digital copies of the Quran around the globe?	577	91	86%
15	Due to the advancement of technology and mobile/smart phones, do you think that more people will read Quran in digital format on mobile/smart phones than paperback book format? **	550	118	82%
16	Are you aware of any organization that provides authentic digital copy of the Quran ? *	568	100	85%
17	Do you have any other comments or suggestions? ***	116	552	17%

\* These questions may have a written response.

\*\* This question was not in the survey during the first few days of the survey was conducted and was added on Sept 23,

where already 26 responses were received to the other questions.

\*\*\* Open question, general comments/suggestions.

The participants of the survey were Muslims from different countries around the globe; the responses were according to either nationality and/or place of resident. Thus, due the fact that the authors reside in Saudi Arabia and most of the people helped in the dissemination of the survey reside in Saudi Arabia, the responses to this question could have been according to the nationality/current citizenship/ or place of resident, Table 3 presents the different countries with the corresponding number of individuals participating. The number of people responded with Saudi Arabia are 55.7%, (Table 3, shown with \*), which shows that many of the participants are either Saudis or non-Saudis residing in Saudi Arabia. In addition, 8.8% (Table 3, shown with \*\*), of the participants who chose other

nationality did not specify the country they are from.

**Table 2: Statistics on the Age of Participants**

<b>(Question 1) - Which category below includes your age?</b>		
Answer Options	Response Percent	Response Count
17 or younger	0.7%	5
18-20	7.5%	50
21-29	47.9%	320
30-39	24.6%	164
40-49	13.6%	91
50-59	4.3%	29
60 or older	1.3%	9
<b>Answered question</b>		<b>668</b>

**Table 3: The Nationality/Country of Resident for Survey Participants**

Country	Responses	Percentage
Algeria	8	1.2%
Australia	2	0.3%
Bangladesh	14	2.1%
Canada	5	0.7%
China	2	0.3%
Egypt	11	1.6%
France	3	0.4%
India	7	1.0%
Jordan	4	0.6%
Kuwait	1	0.1%
Libya	13	1.9%
Malaysia	14	2.1%
Morocco	1	0.1%
Nigeria	1	0.1%
Pakistan	103	15.4%
Palestine	2	0.3%
Saudi Arabia*	372	55.7%
Sudan	3	0.4%
Syria	4	0.6%
Tunisia	1	0.1%
UAE	1	0.1%
United Kingdom	3	0.4%
USA	6	0.9%
Yemen	8	1.2%
Other **	59	8.8%
Didn't Answer Question	20	3.0%
Total	668	100.0%

The survey aims to investigate how often people read/recite the Quran using smart technologies, and what type of technology they prefer to use. The results from Tables 4 to 6 provide the responses for Questions 4 to 6. The response to how often you recite the Quran? shows that 85% of the people recite Quran on regular basis or on unplanned basis. 70% prefer to read from the Mushaf (Paperback format) with 30% prefer digital Quran from online sources or software downloaded through mobile application stores e.g. Apple, Android ... etc. The results prove that most people recite Quran in an unplanned manner due to their busy schedule. Whereas, there are a substantial amount of users who recite Quran on daily bases. These results also prove that mobile devices are more preferred due to unplanned schedule, because it is hard to carry a printed book format of Muhaf all the time, whereas, a mobile device or smart phone usually resides in the pocket of people. The response to Question 5 shows that still the most authentic and valuable way to read/recite the holy book is through a printable format.

**Table 4: Statistics on How often do People Recite Quran?**

(Question 4) - How often do you recite Quran?		
Answer Options	Response Percent	Response Count
Daily	22.9%	146
Alternate Days	12.2%	78
Unplanned	49.8%	318
Prefer not to say	15.0%	96
<b>Answered question</b>		<b>638</b>
<b>Skipped question</b>		<b>30</b>

**Table 5: Statistics on how People Prefer to Recite the Quran**

(Question 5) - How do you prefer reciting the Quran?		
Answer Options	Response Percent	Response Count
On paper (book)	69.7%	442
On-line	5.4%	34
On-paper & On-line Both	17.8%	113
By software download through mobile app store	30.0%	190
<b>Answered question</b>		<b>634</b>
<b>Skipped question</b>		<b>34</b>

Table 6, shows that 36.2% of people using technology to recite the Quran and they prefer mobile devices, 12.2% prefer other digital devices, and 21.2% use both mobile and digital devices. On the other hand, 30.4% do not use any technology and prefer to read from the Mushaf, in which almost half of the population prefers reading the Quran using a mobile device and a major population prefers reading it on a mobile device or a digital device. Whereas, quite a large number of respondents do not use any sort of digital devices to recite Quran.

**Table 6: Statistics on Reciting Quran from Mobile/Digital Devices**

(Question 6) - Do you prefer reciting Quran on a Mobile device or a digital device?		
Answer Options	Response Percent	Response Count
Mobile device	36.2%	229
Digital device	12.2%	77
Both	21.2%	134
Don't use any device	30.4%	192
<b>Answered question</b>		<b>632</b>
<b>Skipped question</b>		<b>36</b>

Question 7 is a bit technical i.e. "Which OS (Operating System) is supported by your mobile phone?". A head to head ratio goes to Apple and Android due to their large-scale popularity. The least goes to Windows based operating systems. From Table 7, the response to question 8 shows that around 54% do have the feeling or sometimes have the feeling of uncertainty that the digital Quran may be tampered with or has mistakes. Therefore, this is an alarming finding that should be taken seriously in order to speed up the development of authentic digital copies of the Quran.

The responses to Question 9, Table 8, present the reasons for not reciting the Quran from digital devices. Medical reasons provide less than 5%, feeling of uncomfortable due to screen size of device, font etc. provides 43%. Feeling of uncertainty that the digital Quran is authentic presents about 25.6%, and other reasons, 27.2%.

**Table 7: Statistics on Feeling of Uncertainty when Reciting from Digital or Online Applications**

<b>(Question 8) - While reciting Quran on-line or on mobile application, do you have the feelings of uncertainty if the digital version of Quran is fake, tampered or has typing mistakes?</b>		
<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Yes	21.0%	129
No	23.8%	146
Sometimes	33.1%	203
I never had any peculiar feeling	22.1%	136
<b>Answered question</b>		<b>614</b>
<b>Skipped question</b>		<b>54</b>

**Table 8: Statistics on Reasons for not Reciting the Quran from Digital Devices**

<b>(Question 9) - If you do not read the Quran from digital devices, What is the reason for not reciting the Quran on a digital device?</b>		
<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Medical reasons	4.3%	26
Feel Uncomfortable	42.9%	260
Uncertainty, forgery might be possible due to unauthentic sources	25.6%	155
Other	27.2%	165
Other (please specify)		108
<b>Answered question</b>		<b>606</b>
<b>Skipped question</b>		<b>62</b>

Some of the reasons quoted from the survey include the following quotes as presented by the respondents:

- My children should see me reciting the Quran from Book. Mobile phone doesn't create that feeling to others.
- I some time use digital device if printed version is not available.
- I feel the spirituality of the Quran when I touch it.
- I do read from a digital device so that I do not neglect the Quran and I keep reading it always.
- I read from digital devices whenever, I do not have Wudu (ablution) or a Mushaf is unavailable. (Note: Ablution is required for touching the Mushaf).
- Besides feeling uncertain about its correctness, when I recite Quran from a digital device, I cannot give that device the amount of respect that we should give to the Mushaf, because it is still

an electronic device and not a Mushaf and it will never be a Mushaf. What makes me worry more is that, with time, people may start dealing with the paper Mushaf as they deal with a device (paying less respect). I believe that reciting Quran should be limited to a Mushaf since the Mushaf demands special consideration and care. Our children will grow up not knowing those qualities and considerations of dealing with a Mushaf if we keep looking at screens when reciting Quran, which is going to be a major shortage in their education and respect to Islam and Allah (God).

- I read from digital devices; however, I feel sometimes there could be some mistakes so I double check using the paper copy of the Quran.
- I do not read from digital devices I only listen to Quran from YouTube and sometimes I read from the Mushaf.
- I prefer reading Quran from a hard copy; however, use online digital copies to search, listen to famous reciters, read some Tafseer (meanings of the Quran) and listen to lectures.
- Prefer to use printed version that needs ablution before touching and gives the sense of honor and purity. Sometimes digital versions are used for checking verses quickly or may be for searching verses/surahs or confirming information.

The response to Question 10, Do you think that the digital copy of the Quran available on a digital device is authentic?, unexpectedly shows that 78% of people surveyed have doubt/suspicion or have no idea that such copies may not be authentic and only 22% believe and certain that the digital copy of the Quran on digital devices is authentic. Again, these results are very alarming since the percentage of those who are having doubt/suspicion in authenticity of the digital copies of the Quran is very significant and therefore it should be a reason for Muslims to protect their holy book by developing authentic digital copies of the Quran.

**Table 9: Responses to Question "Do you think that Authentic Copies of Quran are Available on Digital Devices"**

<b>(Question 10) - Do you think that the digital copy of the Quran available on a digital device is authentic?</b>		
<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Yes	22.0%	132
No	10.3%	62
Maybe	37.3%	224
I don't have any idea	14.8%	89
Never thought about it	15.5%	93
<b>Answered question</b>		<b>600</b>
<b>Skipped question</b>		<b>68</b>

**Table 10: Responses to the Question “Do you think that the digital copy of the Quran available on a digital device is authentic?”**

<b>(Question 11) - Do you prefer reading a digitally signed and 100% authentic copy of the Quran on-line and/or through mobile applications?</b>		
<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Yes	77.1%	458
No	17.5%	104
Why?	5.4%	32
Why? (please specify)		52
<i>Answered question</i>		<b>594</b>
<i>Skipped question</i>		<b>74</b>

The results from Question 11, in which 77% of the respondents urged the need to have an international Islamic body to monitor the authenticity of the digital copies of the holy book. This number is close to the 78% of people who are not sure or suspect that fake/tampered copies of the Quran exist. As expected Muslims prefer to read authentic copies of the Quran; however if the copy is digital then some people may not prefer to read from online, mobile or digital devices due to reasons, such as the following quoted from the survey responses:

- Weak eyesight.
- Feel uncomfortable.
- The reverence feeling of reading the Quran is lost, since technology reduces the reverence of reading the Quran.
- The printed Mushaf is a respected object. Even if the digital copy is authenticated, our next generations and we are going to lose the skill and respect of dealing with the Mushaf. Also, the ease of carrying a digital copy in our pockets may encourage many people to stop memorizing the Quran since carrying a paper Mushaf with us everywhere is not as easy as carrying a digital copy in a palm size device that we are carrying with us anywhere.

Quoted reasons from the survey responses for reading the Quran from authentic digital copies (online and/or digital devices) of the Quran are:

- Portability and convenience
- Ablution is not required for recitation as it is not a Mushaf (paper copy)
- Women during their menstrual period find it convenient to use digital devices since they are not allowed to touch the Mushaf during their periods.
- Those who memorize the Quran by heart can detect any mistakes; however, they only prefer to read digital copies in certain occasions, such as during travel or when no paper copies are available.

- Digital and mobile devices provide privacy in public areas where a person can read the Quran and people won't know that they are reading Quran. It can also be taken to the washroom with no problem. Mobile devices have longer battery life and are preferable over digital devices.
- Digital copies are for quick checking/searching for Ayahs, Tafseer, etc.
- Using digital Quran, its verses can be cross-checked from different sources.

**Table 11: Responses to the Question “Do you prefer reading a digitally signed and 100% authentic copy of the Quran on a digital device?”**

<b>(Question 12) - Do you prefer reading a digitally signed and 100% authentic copy of the Quran on a digital device?</b>		
<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Yes	74.8%	436
No	21.8%	127
Why?	3.4%	20
Why? (please specify)		59
<i>Answered question</i>		<b>583</b>
<i>Skipped question</i>		<b>85</b>

**Table 12: Responses to the Question “Have you ever come across a fake/containing errors version of Quran available on-line?”**

<b>(Question 13) - Have you ever come across a fake/containing errors version of Quran available on-line?</b>		
<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Yes	17.4%	101
No	82.5%	480
<i>Answered question</i>		<b>582</b>
<i>Skipped question</i>		<b>86</b>

**Table 13: Responses to Question “Do you agree that it is unavoidable and necessary to have an authentic Islamic body monitoring and endorsing the digital copies of the Quran around the globe?”**

<b>(Question 14) - Do you agree that it is unavoidable and necessary to have an authentic Islamic body monitoring and endorsing the digital copies of the Quran around the globe?</b>		
<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Yes	92.7%	535
No	2.1%	12
Maybe	5.2%	30
<i>Answered question</i>		<b>577</b>
<i>Skipped question</i>		<b>91</b>

**Table 14: Responses to Question: “do you think that more people will read Quran in digital format on mobile/smart phones than paperback book format?”**

<b>(Question 15) Due to the advancement of technology and mobile/smart phones, do you think that more people will read Quran in digital format on mobile/smart phones than paperback book format?</b>		
<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Yes	57.3%	315
No	10.4%	57
Maybe	32.4%	178
<b>Answered question</b>		<b>550</b>
<b>Skipped question</b>		<b>118</b>

After going through the responses from Tables 11 to 15, it has been observed that 74% of the individuals surveyed prefer reading a digitally signed online copy of the holy book. Most of the people i.e. 82.5% are not aware of the any fake Quran available online. Among all the respondents, 92.7% agree that an Islamic monitoring body is mandatory to judge the online and digital copies globally. Around 57.3% have agreed that more people are going to switch to mobile devices from traditional paperback book formats.

As it is expected from the responses to Question 16, not too many people are familiar or know any organization that provides authentic digital copies of the Quran, only 11.3% know or are familiar with the name of an organization, which provides authentic digital copies of the Quran. From those who answered ‘yes’ to this question only 2/3 mentioned a name of such an organization. The list of organizations mentioned include: King Saud University, King Fahd Quran Complex for Printing the Holy Quran, Kuwait Development Bank, Islamic Forum Organization, Tanzil.net, Zekr.org, Al-Mousa Complex for Quran memorization, and the Ministry of Endowment and Islamic Affairs. However, not all of these organizations provide authentication of digital Quran however, most of them only provide access to authentic digital copies of the Quran.

**Table 15: Responses to Question: “Are you aware of any organization that provides authentic digital copy of the Quran?”**

<b>(Question 16) Are you aware of any organization that provides authentic digital copy of the Quran?</b>		
<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Yes	11.3%	64
No	88.7%	504
If yes (please specify)		44
<b>Answered question</b>		<b>568</b>
<b>Skipped question</b>		<b>100</b>

The response to Question 17 provided some interesting comments quoted below are some of these comments:

- I really feel the need of an organization at international level that shall provide authentic digital copy of the Quran
- Yes Muslims should have very strict check over the web on any kind of site being filled with Islamic information and have kind of forum or kind of list provided somewhere about the sites containing fake Islamic material info or anything like that.
- Quran must be preserved on such devices. It's relatively easy to attack the Holy Quran through these devices.
- Quran in a digital format with 100 % authenticity is a need for today's generation, because people cannot carry the book of Holy Quran everywhere with them, but can carry the digital format even while traveling.
- In some cultures the Quran is considered to be too sacred to have on a mobile device that you put in your pocket or drop on the floor. Translations are not a problem though.
- We should put more effort in awareness of using digital copies of Quran. We should make it clear for people that such copies are useful for indexing and search purposes only, but not recitation. Digital copies of Quran are not new, we have been using it since the early 1980s, but they were just used as a reference or index while the full text is taken from the paper Mushaf. Finally, recitation is one way of worshipping Allah and we should not expose that practice to modernization and innovation.
- It is noticed that many of the Quran applications available on CDs are incomplete, with some Surahs missing or contain some typos. Similarly, some of the MP3 versions of the Quran available on the Internet do contain mistakes.
- There is a different feeling when reciting Al-Quran through book and a different feeling while reciting online (digital devices).
- The Quran (Mushaf) comes as a witness for you on the hereafter and the best thing is to make ablution and read the Quran from the Mushaf more and more for a greater reward.
- We need to develop some cookies for smart phones, which can authenticate the Quranic characters word by word according to the writing styles before reading. This can be done using imaging processing matching techniques.
- I hope there will be an authentication body for Quran applications, which does not allow any unapproved (certified) application/software to be

available in the market without any approved seal or watermark.

- I wish that an authentic digital copy of Quran would have the following features:
  - The ability to enlarge fonts
  - A voice reading for a whole or part of a surah
  - An explanation of a chosen word or Verse in a pop-up approach.
- Reading from the Mushaf is very important in order not to neglect the Quran, also a digital copy of the Quran is essential since it helps to read more due to its portability and easy to carry to different places especially when traveling to non-Muslim countries; therefore, both option are very essential.
- I used to use a digital version on my Symbian and BlackBerry devices and then discovered that there was an error in a word in one of the verses. So, I stopped using it. I only started again now that I have an *iOS* device and was assured that the Kuwaiti Development Bank software is 100% accurate.
- There is no need for a digital Quran and there are many important things concerning Islam and Muslims to think about than producing a digital copy of the Quran.
- There should be an Organization, with only one responsibility, i.e. to monitor the online Quran and Its Translations on Websites.

### 5. Digital Quran on Mobile & Web Applications

In addition to the questionnaire (survey) discussed above, information on current available Quran mobile apps was gathered from many Internet resources. To the best knowledge of the authors the information collected reflects all what could be found from the Internet as of November 2012.

The number of mobile Quran applications found was 209. There could be other apps, which were not included in the statistics (i.e. missed) shown in the Table 16, or were developed thereafter the publication of this work. However, since there is no central body to provide this information it will be difficult to have a complete comprehensive data on all software developed for the Quran.

The survey showed that there are many Quran apps in different OS and formats with about 15% of them designed in different languages other than Arabic or English. However, not all information was available about all the apps. Therefore, from the information gathered, Android OS share over 50% of the apps available followed by Apple then J2ME with less apps designed for Symbian and Windows OS as it is shown in Table 16.

**Table: 16: Statistics on Quran Mobile Apps**

OS / Format	No. of Quran Apps	Apps available free	Apps for money	
			No. of Apps	Price
Android	107	99	8	\$1.94 – \$6.03
Apple	44	13	29	\$0.99 – \$14.99
Blackberry	11	10	1	\$3.99
J2ME phone	12	12	0	-
Symbian	7	7	0	-
iPad	8	8	0	-
Web-based	7	7	1*	-
PDF	4	4	0	-
Windows	6	6	0	-
Windows /Linux/Mac	3	3	0	-

The data collected shows that these apps are regularly updated and that many have several versions. Table 17 shows the update year for the apps surveyed. It also shows that the first Quran mobile application available was developed in 2005.

**Table: 17: Mobile Apps Update Timetable**

Number of Apps	Update year
150	2012
35	2011
16	2010
3	2009
1	2008
2	2007
1	2006
1	2005

The size of the applications vary from one application to another with the highest size found to be 638MB and the smallest size of 79KB, also this information was not available for all apps.

In conclusion, the source of information for the apps was mainly websites. Most of these websites may not be authentic and could be sponsored by groups or organizations, which may not follow Islamic rules and guidelines. The developers are mainly companies or individuals who may not have the Quranic scholars to approve these applications for distribution and no information were provided on the certification and authentication of these digital apps. Finally, without a certifying body to regulate the development and distribution of these apps there is always that doubt in the mind of those using mobile apps if the apps on their mobiles are authentic or not.

### 6. Conclusions and Future Work

The survey analysis and detail results have elaborated the following conclusions:

- Young generation uses smart technologies more as compared to other age groups and they are

adopting to learn or recite religious literature e.g. Holy Quran in digital format.

- Almost, the majority of people among the respondents have recorded their uncertainty while reading the holy book using a digital device or online e.g. mobile apps.
- Due to the fact of past and recent incidents of forgeries, people still prefer reading Quran on a paperback format than reciting it on a mobile or digital device.
- The main reasons behind the uncertainty are the feeling of a forgery or other related issues like typos, medical reasons and other unspecified reasons, etc.
- Muslim population around the globe is almost unaware or lacks the knowledge of the fake Quran available in the market in different digital formats.
- Above all, Muslims around the globe have urged for the need to have an International Islamic Body solely dedicated and responsible for monitoring, scrutinizing and endorsing the digital copies of the Quran.
- Muslims are also emphasizing on monitoring other holy materials like Hadiths (saying of prophet), available in a wide variety of digital formats accessible on smart phones and smart devices like tablets, etc.

Based on these conclusions and facts, it is mandatory to have concrete preventions and measures to monitor the digital copies of not only the holy book i.e. The Quran, but to monitor each and every resources of Islamic material being published online. This includes, digital material made available on mobile devices and smart phones, tablets and personal computers, digital devices, and online Islamic websites etc.

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