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A Study on Impact of Smartphone on Users

A. Thilagavathi[1], Dr. V. S. Kanchana[2]
[1]*Ph.D Research Scholar, Dept of Commerce, LRG Government Arts College for Women, Tirupur, Tamil nadu, India*
[2]*Assistant Professor, Department of Commerce, LRG Government Arts College for Women, Tirupur, Tamil nadu, India*

Abstract: ***The intention of this study is to investigate how Smartphone's are impacting the society and also how Smartphone's are going to transform the culture, social life, technology landscape and other diverse aspects of modern society. The objective of the study is to assess the advantages and disadvantages of Smartphone usage and to compare the advantage and disadvantage impact among selected personnel variables. The sample size is 200 respondents.***
The statistical tools used in this study are Simple Percentage, Rank analysis, Paried samples test, ANOVA, T-test. The intention of this study is to understand all Advantages and disadvantages aspects of Smartphone users.
The study primarily focus on impact of Smartphone on business, education, health issues, human psychology and social life. The study findings among several items, respondents have agreed that they were able to improve their common skills and knowledge. The Smartphone distract students from their studies and the respondents feel it leads to lack of interaction between individuals.
Keywords: Smartphone, Mobile Applications, Social Impact, Addiction, Health.

I. INTRODUCTION

The first ever cell phone was formulate by Martin Cooper on April 3rd, 1973, that was only for two troys. The height of that phone was 10 inches, depth 3 inches and the width an inch and a half (motorcity, 2003). At that time it was the only way to interface with each other.

And at that time it was not available to the general population and it was used for the first time only businesses and government. In 1992, the first Smartphone formulate by IBM, known as a Simon Smartphone.

This was a big break through in the field of telecommunications and for the requirements of people. Because people want to connect with each other with in a small period of time. It becomes possible to send messages and sending email to each other with the help of Smartphone.

To understand that one technological device could change culture of customer, style of living and the whole population. After the formulated of Smartphone a sudden change came into being in the human life and finds the way to go ahead in the field of telecommunications. It is not possible to find anyone without Smartphone. The Smartphone is very essential device for professionals, family members and students.

In other words a Smartphone is also known as personal computer (pc) with advanced capabilities and functionality. The Smart phones, being a very new invention of humanity, became an inherent part of human's life. The Smartphone combines different sophisticated features.

It allows users to keep pictures, memories, personal info, correspondence, health and financial data in one place. In this context, the following study was conducted with the objective of finding out the impact of Smartphone.

II. LITERATURE REVIEW

1) Neelamalar and Chitra (2009) investigated The usage and the impact of social networking sites on the younger generation of India. Most of the respondents registered on it to maintain existing contacts. Majority of youth state that social networking sites act as a platform for reconnecting with lost friends, maintaining existing networks/relationships and sharing knowledge, ideas and opinions.

2) Javid, Malik and Gujjar (2011) "Mobile phone culture and its psychological impacts on students learning at the university level". This study revealed that students share useful information with their classmates and teacher, can consult dictionary and thesaurus etc. for academic purpose through mobile phone. The female students live in remote areas feel secure and their parents can contact them whenever necessary. It has increased the rate of telling lie among students. It has also put everlasting impacts on culture.

3) Ahmed, Qazi, and Perji(2011) conducted a research among 500 students in Pakistan to study the pattern of mobile phone usage among youngsters to explore the extent of addictive behavior towards its usage. The result of the study indicated that majority respondents were able to draw a line of priority between the responsibilities and commitments and the cell phone usage. Very few always showed extreme addictive behavior while rests of the respondents were not frequently involved in addictive usage patterns. Youngsters use their cell phones logically and controllably within a limit and do not tend towards extreme behaviors which are capable to lead towards addictive cell phone usage

4) Vandana Goswami, Dr.Divya Rani Singh (2016) studied the Impact of mobile phone addiction on adolescent's life. Found that three characteristics of mobile phone addiction, the first is that people who are addicted to mobile phone always keep their mobile phones on. The second is that they tend to use their mobile phones even when they have a land-line phone at home. Finally, they normally are confronted with financial and social difficulties due to their excessive mobile phone use.

5) Maya Samaha(2016) examined "The Relationships among Smartphone addiction, stress, academic performance and satisfaction with life". The study concluded that Smartphone addiction risk was positively related to perceived stress, but the later was negatively related to satisfaction with life and it was negatively related to academic performance.

6) Khurana and Dikshit (2016) examined "The mobile phone addiction among girls and boys". Living environmental conditions have an effect on their level of mobile phone addiction. It concludes that the boys reported significantly high mobile phone addiction compared to their female counterparts.

7) Suhag AK LarikRSA and Madiha(2016) studied the Impact of excessive mobile phone usage on human. It is concluded that usage of mobile phones causes three diseases such as the brain tumor, male infertility and ear hearing function can be affected on human health.

8) Manvin Kaur Kuldip Singh and Narina A. Samah (2018) "Impact of Smartphone: A review on positive and negative effects on students". The use of Smartphone among university students in the 21st century is seen as an important part of their life because of its advanced features. Most of the students utilize Smart phones for entertainment, social and education purposes. The review of this study is important in providing the outcome of Smartphone use either it is positively or negatively effecting students life.

9) Dr K.Sumathi, N.Selva Lakshmi and S.Kundhavai (2018) "Reviewing the impact of Smartphone Usage on academic performance among students of higher learning". The students who have Smart phones were more likely to both access social networks and spend time in charting with others. From educational point of view, student can enhance their academic performance level by watching online resources and professors may have to be wary of assigning project works involving social media to students as some may have an advantage in completing the work than others.

10) Didier M. Valdes Diaz (2018) conducted the study on "Assessing the impact of Smartphone usage while driving in work zones". The increase of Smartphone usage by drivers is particularly concerning in highway work zones when operations and maintenance activities are being performed. The study had three different workspaces located at the left lane, right lane and right shoulder. The standard deviation of lateral position and mean speed were obtained in four different locations along the work zone. The results demonstrated that 67% of the subjects avoided impacting the worker by performing an evasive maneuver.

III. OBJECTIVES OF THE STUDY

A. To assess the advantages and disadvantages of Smartphone usage.

B. To compare the advantages and disadvantages impact among selected personnel variables.

IV. RESEARCH METHODOLOGY

The main aim of the study is to know the impact of Smartphone on users and identify the advantage and disadvantage scores of Smartphone.

Descriptive research is used to find out the Smartphone impact among users. The study was conducted among the Smartphone users who are using a Smartphone in Tirupur City. Primary data is collected from the respondents and the secondary data was obtained from journals, websites and magazines**.** Sample size is 200 respondents drawn on random sampling basis. The data collected is tabulated, analyzed and interpreted by applying the following statistical tools - Simple percentage, Rank analysis, ANOVA, T-test and Paried samples test.

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V. DATA ANALYSIS AND RESULTS

TABLE NO: 1 DEMOGRAPHIC PROFILE OF RESPONDENT

PERSONAL FACTORS		NO.OF RESPONDENTS	PERCENTAGE
AGE GROUP	Upto 20years	22	11.0
	21-30 years	64	32.0
	31-40 years	64	32.0
	41-50 years	35	17.5
	Above 50 years	15	7.5
GENDER	Female	96	48.0
	Male	104	52.0
MARITAL STATUS	Married	135	67.5
	Unmarried	65	32.5
EDUCATIONAL QUALIICATION	School level	44	22.0
	Graduate	39	19.5
	Post Graduate	37	18.5
	Professional	47	23.5
	Diploma	33	16.5
OCCUPATIONAL STATUS	Student	36	18.0
	House Wife	18	9.0
	Employed	73	36.5
	Agriculture	9	4.5
	Business	24	12.0
	Professional	40	20.0
NUMBER OF EARNING MEMBERS	1 Member	41	20.5
	2 Members	119	59.5
	3 Members	32	16.0
	Above 3 Members	8	4.0
FAMILY INCOME PER MONTH	Less than Rs.20,000	46	23.0
	Rs. 20,000- 40,000	75	37.5
	Rs. 40,000- 60,000	35	17.5
	Rs. 60,001- 80,000	29	14.5
	Above Rs. 80,000	15	7.5
NUMBER OF FAMILY MEMBES	2 Members	9	4.5
	3 Members	49	24.5
	4 Members	101	50.5
	Above 4 members	41	20.5
FAMILY SYSTEM	Nuclear Family	147	73.5
	Joint Family	53	26.5

32% Of the respondents age is between 21-30 years and 31-40 years. 52% of the respondents are male. 67.5% of the respondents are married. 23.5% of the respondents are Professional. 36.5% of the respondents are employed. 59.5% of the respondents are having 2 earning members. 37.5% of the respondents Family monthly income is between Rs.20,001-40,000. 50.5% of the respondents having 4 members in their family. 73.5% of the respondents are living as Nuclear family system.

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TABLE NO: 2 MOBILE RELATED INFORMATION

MOBILE RELATED INFORMATION		NO.OF RESPONDENTS	PERCENTAGE
Number of cell phone owned by respondent	One	133	66.5
	Two	56	28.0
	Three	9	4.5
	Above three	2	1.0
Type of smartphone by sim	Single	27	13.5
	Dual	173	86.5
Operating system installed in smartphone	Android	187	93.5
	Windows	4	2.0
	Symbian	1	0.5
	Apple ios	4	2.0
	Blackberry	4	2.0
Price of current brand of smartphone	Less than Rs. 5,000	17	8.5
	Rs. 5,001-10,000	84	42.0
	Rs. 10,001-15,000	74	37.0
	Above Rs.15,000	25	12.5
Total		200	100.0

66.5% of the respondents own only one cell phone, 86.5% of the respondents have Smart phones with Dual SIM option, 93.5% of the respondents are having Android operating system installed in their Smartphone, 42.0% of the respondents current brand of Smartphone price is between Rs.5,001-10,000.

TABLE NO: 3 SMART PHONE ADVANTAGES

SMART PHONE ADVANTAGES	N	MINIMUM	MAXIMUM	MEAN	S.D	RANK
I have improved my common skills and knowledge	200	1.00	5.00	4.3450	.78681	1
I am able to access different information from different source	200	1.00	5.00	4.0000	.79572	6
I am able to access to a massive amount of educational resources	200	1.00	5.00	3.7600	.93099	8
I am able to communicate with people easily and in a better way	200	1.00	5.00	4.1200	.80551	3
Use of Smartphone gives me opportunity to learn new things	200	1.00	5.00	4.1050	.79822	4
I am able to access and use several applications	200	1.00	5.00	4.0100	.85060	5
I can get exposed to vast data on a global scale	200	1.00	5.00	3.8800	1.02511	7
Smartphone helps me to save my time and money	200	1.00	5.00	3.2950	1.05525	10
Smartphone provides a mean to reduce stress in my busy work life	200	1.00	5.00	3.4300	1.06337	9
I am able to complete a lot of work which saves my time and energy.	200	1.00	5.00	4.1500	1.04063	2

For 6 statements the average ratings fall between four and five i.e., Agree to Strongly agree. For 4 statements the average ratings fall between three and four which indicates that the respondents are Neutral and Agree the statements. Among several items, respondents have agreed that they were able to improve their common skills and knowledge with a mean rating of 4.34 and also they are able to complete a lot of work which saves their time and energy mean rating 4.15. The level of agree ability is least for the statement that Smartphone saves time and money. This might be due to the fact that the phone bill has increased after they have started using Smartphone and knowingly or unknowingly they are spending more time in smart phones.

TABLE NO: 4 ANOVA FOR SMARTPHONE ADVANTAGES SCORE

Smartphone advantages score		Sum of squares	DF	Mean square	F	SIG
AGE	Between Groups	12.564	4	3.141	.156	NS
	Within Groups	3930.631	195	20.157	-	-
EDUCATIONAL QUALIFICATION	Between Groups	104.340	4	26.085	1.325	NS
	Within Groups	3838.855	195	19.686	-	-
OCCUPATIONAL STATUS	Between Group	177.399	5	35.480	1.828	NS
	Within Groups	3765.796	194	19.411	-	-
FAMILY INCOME PER MONTH	Between Groups	98.969	4	24.742	1.255	NS
	Within Groups	3844.226	195	19.714	-	-
PRICE OF CURRENT BRAND OF SMARTPHONE	Between Groups	205.390	3	68.463	3.590	*
	Within Groups	3737.805	196	19.070	-	-

NS- Non Significant * Significant at 5% Level

H0. The mean advantage scores do not differ significantly among the groups of personal variables namely, age, education, occupation, family income, price of smart phone.

The result show that the F-Values for age, education, occupation, family income are found to be not significant. The F-Value comparing the mean scores of groups of price of current brand of smart phone was found to be significant at 5% level. Hence it is inferred that the mean advantage scores differ significantly for price of current brand of smart phone and hence the hypothesis is rejected.

TABLE NO: 5 T-TEST FOR SMARTPHONE ADVANTAGE SCORE

SMART PHONE ADVANTAGE SCORE		MEAN	S.D	NO.	T-TEST VALUE	SIG
Gender	Female	39.00	4.45	96	0.289	NS
	Male	39.18	4.47	104		
Total		39.10	4.45	200		

NS - Not significant

1) The advantage score was compared between male and female respondents. The means scores are calculated which are given above. The mean score of female is 39.00 and male is 39.18.

2) H0. The mean Smartphone advantage scores do not differ significantly between male and female.

The T-test values are 0.289 which shows that there is no significant difference between male and female in the mean advantage scores. Hence the hypothesis was accepted.

TABLE NO:6 SMART PHONE DISADVANTAGES

SMARTPHONE DISADVANTAGE	N	MINIMUM	MAXIMUM	MEAN	S.D	RANK
I Feel it leads to lack of interaction between individuals	200	1.00	5.00	3.7550	.82971	4
I am addicted to Smartphone	200	1.00	5.00	3.0100	1.21956	8
I feel that use of Smartphone leads to waste of my time	200	1.00	5.00	2.8400	1.11382	9
Smartphone distracts students from their studies	200	1.00	5.00	3.9250	.91847	1
I feel that there is a possibility of privacy leak	200	1.00	5.00	3.6250	.96906	6
Affects my career	200	1.00	5.00	2.5650	1.18439	10
More usage of Smartphone leads me to avoid oral communication	200	1.00	5.00	3.6550	.83634	5
Increased usage of Smartphone may create problem with education of students	200	1.00	5.00	3.5500	1.05025	7
More interaction with the Smartphone and decreased the interaction with human	200	1.00	5.00	3.8000	.94577	3
Usage of smart phones create problems like more accidents, health issues, eye sight problem etc.	200	1.00	5.00	3.8900	1.05521	2

For most of the items the average ratings falls between 3 to 4. i.e., the level of agreement for most of items falls between Neutral and Agree. Among several items, Smartphone distracts students from their studies as got the highest mean rating of 3.92, the next highest is that the respondents feel usage of smart phones create problems like more accidents, health issues, eye sight problem etc., mean rating of 3.89. The respondents' level of agreeability is the least for the statement that smart phones affect their career. i.e., the level of agreement of the respondents falls between neutral and agree for this item. Hence it is concluded that Smartphone distracts students from their studies and the respondents feel it leads to lack of interaction between individuals.

TABLE NO: 7 ANOVA FOR SMARTPHONE DISADVANTAGES SCORE

Smartphone disadvantage score		Sum of squares	DF	Mean square	F	SIG
Age	BETWEEN GROUPS	225.633	4	56.408	2.425	*
	WITHIN GROUPS	4535.722	195	23.260		
Educational qualification	BETWEEN GROUPS	288.243	4	72.061	3.141	*
	WITHIN GROUPS	4473.112	195	22.939		
Occupational status	BETWEEN GROUPS	131.571	5	26.314	1.103	Ns
	WITHIN GROUPS	4629.784	194	23.865		
family income per month	BETWEEN GROUPS	394.556	4	98.639	4.405	**
	WITHIN GROUPS	4366.799	195	22.394		
price of current brand of smartphone	BETWEEN GROUPS	106.768	3	35.589	1.499	Ns
	WITHIN GROUPS	4654.587	196	23.748		

* Significant at 5% level NS – Not Significant ** Significant at 1% level

H0. The mean disadvantage scores do not differ significantly among the groups of personal variables namely, age, education, occupation, family income, price of smart phone.

The results show that the F-Values for occupation, price of Smartphone are found to be not significant. The F-Value comparing the mean scores of groups of age, education was found to be significant at 5% level. The F-Value comparing the mean scores of groups of family income was found to be significant at 1% level. Hence it is inferred that the mean disadvantage scores differ significantly for age, education and family income, hence the hypothesis is rejected with respect of age, education, family income only.

TABLE NO: 8 T-TEST FOR SMARTPHONE DISADVANTAGE SCORE

Smart Phone Disadvantage Score		Mean	S.D	NO.	T-TEST Value	SIG
Gender	Female	34.90	5.12	96	0.779	NS
	Male	34.36	4.68	104		
Total		34.62	4.89	200		

NS - Not significant

The disadvantage score was compared between male and female respondents. The means scores are calculated which are given above. The mean score of female is 34.90 and male is 34.36.

H0. The mean Smartphone disadvantage scores do not differ significantly between male and females.

The T-test value is 0.779 which is found to be not significant shows that there is no significant difference between males and females in the mean disadvantage scores. Hence the hypothesis was accepted.

Table No:9 Comparison Between Advantage And Disadvantage Scores Paried Samples T-Test For Age

AGE	T	DF	SIG
Upto 20 years	5.835	77	**
21-30 years	6.743	149	**
31-40 years	9.604	146	**
41-50 years	7.369	86	**
Above 50 years	6.850	37	**

H0. The Smartphone advantage and disadvantage scores do not differ significantly among all the age groups.

For all age groups the T-test values are found to be significant at 1% level and it is inferred that there is significant difference between advantage and disadvantage scores among all the age groups. Hence hypothesis is rejected.

TABLE NO: 10 PARIED SAMPLES T TEST FOR GENDER

GENDER	T	DF	SIG
Female	12.302	252	**
Male	10.163	246	**

H0. The Smartphone advantage and disadvantage scores do not differ significantly among the gender.
T-test values are found to be significant at 1% level and it is inferred that there is significant difference between advantage and disadvantage scores among all the female and male groups. Hence hypothesis is rejected.

TABLE NO:11 PARIED SAMPLES T-TEST FOR EDUCATIONAL QUALIFICATION

EDUCATIONAL QUALIFICATION	T	DF	SIG
SCHOOL LEVEL	5.923	105	**
GRADUATE	7.789	156	**
POST GRADUATE	9.616	103	**
PROESONAL	7.988	76	**
DIPLOMA	4.549	55	**

H0. The Smartphone advantage and disadvantage scores do not differ significantly among the educational qualification.
The T-test results shows that for all school level, graduate, post graduate, professional, and diploma groups the T-test values are found to be significant at 1% level and it is inferred that there is significant difference between advantage and disadvantage scores among all the school level, graduate, post graduate, professional, and diploma groups. Hence the hypothesis is rejected.

VI. CONCLUSION

In order to understand the advantage and disadvantage impact of Smartphone it is very important to educate the users on how to use Smartphone's smartly. The education should emphasis to enhance the advantage impacts and highlight the disadvantage impacts clearly so that the users can take advantages of this exciting technology. Security and access control there are several initiatives from different vendors to combat the misuse of Smartphone at workplace and others and many other vendors provide solutions to control the access of Smartphone within the workplace and other place. Smartphone can certainly be smart if the vendors, society and technologists understand their responsibility towards usage of these devices smartly in order to get more benefits in business, education, health and social life. It is apparent from above facts that the benefits of Smartphone are tremendous and disadvantage impacts are minor. So it is important to concentrate on how to stop and avoid smartly the misuse of Smartphone rather trying to stop or avoid use of Smartphone.

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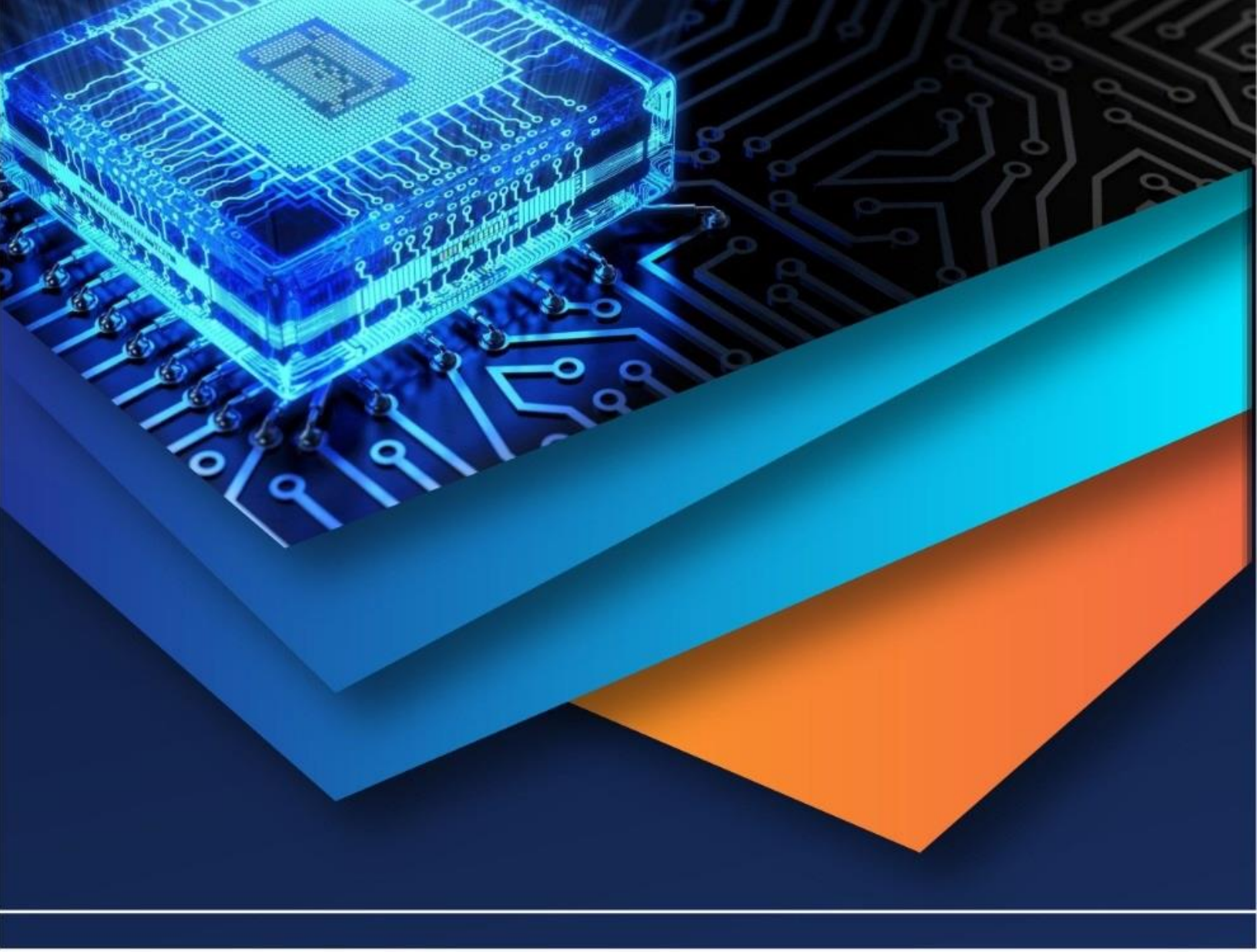

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