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Artificial Intelligence for smarter surveillance using CCTV cameras in the UAE

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Artificial Intelligence for smarter surveillance using CCTV cameras in the UAE

By

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Abstract

Nowadays there are many technologies being developed worldwide, and people should keep abreast of new technologies and developments. In addition, many companies are focusing on developing new features and technologies for cameras in several sectors. It's very important to have cameras in public places, schools or hospitals. For instance, in these public places they need to install cameras that recognize image processing, avoiding recording people's information and data, when the crime happened, or for safety purposes. On the other hand, CCTV cameras pose risks since we don't know who is monitoring the screen, and this sensitive footage can be shared with others. Normal cameras can face issues in storing videos who monitor the screen, and it's easy to share information. Also in the street, the camera should read the details of the cars. These cameras should not only be placed in public areas such as schools and hospitals, but it's also very important to have it at home.

Furthermore, with Artificial Intelligence the technologies have been changed, and human minds are changing. Nowadays AI can be used for several things, which I will separate below. It's not only for monitoring, it can be used for safety for example, or to facilitate education, even in fashion, retailers can be benefits from AI cameras.

On the other hand, people are not aware of AI cameras since they are new to the public and they're different than normal cameras because they analyze the video without human intervention somehow.

Instead, the challenges that the project will address are how many sectors can benefit from using artificial intelligence cameras, as well as the benefits of using them in public areas. This project will address the issues and how the UAE can benefit from applying AI cameras properly.

Moreover, a set of questions will be answered by different people to know their opinions. After that, the solution will be shown at the end and how other countries implemented AI cameras in their sectors.

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Chapter 1

1.1 Introduction

The market has been flooded with different types of cameras in recent years, and technology continues to progress faster than ever. Several problems may arise with CCTV cameras, they are vulnerable to attacks and someone may easily gain unauthorized access to a camera by guessing the password until they can hack into the system (LI, 2018). However, it's very important to install cameras in public places, hospitals, and schools for safety purposes. For instance, in these areas mentioned above, cameras that recognize human's details should be installed, not to record people's information and data but to have proof when the crime happened or for safety purpose. The downside of CCTV cameras is that we don't know who is monitoring the screen, and the data captured may be shared with others without consent.

For example, the cameras that are installed in the street have to read vehicle details. Cameras should not only be installed in public areas; it's also quite beneficial to have them at home. On the other hand, even though there continue to be technical advancements, the UAE still does not use artificial intelligence in several sections.

Therefore, the solution will be to move from using normal cameras to install artificial intelligence cameras in hospitals, public areas, streets, and schools. Artificial intelligence duplicates human intelligence handled by machines; it is a system that can solve complex issues in several situations without human intervention (Datatilsynet, 2018).

The benefits of having AI cameras are saving time due to their advanced performance, analyzing data, the ability to read human faces or read car details, and it promotes safety and security. It's very important to have AI in our lives, due to their advantages. For example: having fewer errors, and being able to expect what a user will type, search, do and ask. As well as the advantage of organizing and managing records in a more efficient way. AI thinks logically and makes decisions that include less mistakes and it works 24 hours straight (Paterson, 2017).

1.2 Artificial Intelligence in UAE

In the UAE, they proposed a new artificial intelligence strategy in October 2017, and their goal is to achieve all strategies and objectives by 2071. Additionally, the AI vision in the UAE is "to boost government performance and the rate of accomplishing achievements". The UAE AI Strategy focus on several sectors, such as; transportation, education, health, renewable energy, traffic, water, technology, environment, and space. Figure 1, shows more details about the UAE AI strategy pillars - Domains. (UAE, 2021)
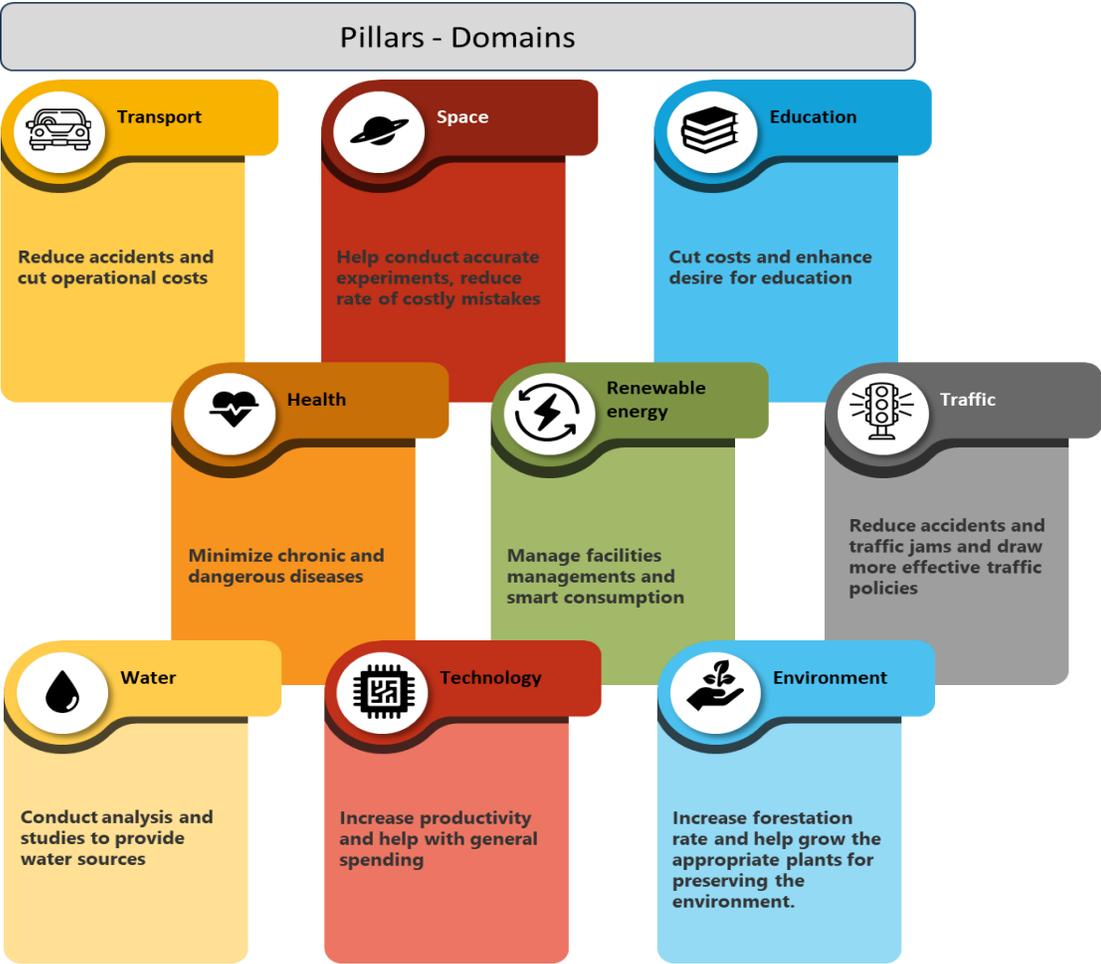

Figure 1 UAE AI Strategy Pillars

1.3   Project goals

The purpose of this project is to enhance the importance of avoiding using normal cameras and keeping up with new technologies such as artificial intelligence cameras, which can be used in public areas, home, streets, and several sectors such as hospitals and education for safety and security. This will make others' life easier. Furthermore, I will display many issues that transpire in several areas, and how they can be solved by using artificial intelligence cameras.

1.4   Aim and Objectives

- To provide the best solution in using AI cameras in several sectors such as healthcare, education, public areas and fashion.
- Let the people know more about AI cameras and the benefits of using this technology.

1.5   Research Methodology

There are two types of method to conduct research and collect data, namely qualitative and quantitative. The meaning of qualitative is to recognize human behavior by asking several questions and getting some information related to the topic we need. the methods used to collect this type of data are through observations, case studies and interviews. Furthermore, data can be collected from video, audio, and photos for the purpose of reporting information and understanding social reality and people's feelings. (Saul McLeod, 2019).

Instead, quantitative data is expressed in the form of graphs and numbers, such as surveys to determine the real data from selected people, as well as to know the percentages, cons and pros of such topics. (Streefkerk, n.d.) (Saul McLeod, 2019). To gather all the information needed I asked people several questions to know their opinions, which I used as qualitative research. First of all, I collected data by sharing a Google forms link online and I sent it to a diverse number of people. I used the Likert scale measurement to find out the degree to which one would be likely to agree or disagree with a question. Besides, I asked some closed-ended questions. These types of data help me understand people's opinions on the subject of artificial intelligence.

Chapter 2 – Literature Review

Nowadays, we can see cameras everywhere, and people feel safe when they see cameras around them, especially in public areas, hospitals, schools and other places. Instead, maybe they would not feel safe if they were used for treatment in the hospitals, as an example. As far as ordinary cameras are concerned, there are around 2 million security guards in the world monitoring live video to ensure safety. In addition, these companies spent a lot of money of around billions of dollars and spent many hours to generate, analyze, and review these videos. The goal is to know how to use AI cameras in several sectors such as healthcare, education, public areas and fashion. Also, with the Covid-19 pandemic, they have to monitor people manually in the malls and public areas to recognize who isn't wearing a mask or at school to monitor the students in the class or when they arrive and leave the school. In contrast, using old-fashioned cameras may pose many problems such as low quality of collected data and difficulties in analyzing said data. Normal cameras are unproductive due to the usage of this type of cameras, and it requires a lot of time and effort to finalize the videos (VINTRA.IO, 2018) (Weiru Liu). The best solution is to keep up with new technologies. The newest is the artificial intelligence camera which will reduce the number of required security guards and the time when reviewing the video. Moreover, it well analyses the video without the need of human intervention. (VINTRA.IO, 2018)

Furthermore, AI cameras will help the police avoid problems and recognize people's faces and data. Also, AI cameras can take cars' details on the street, and people can install AI cameras in their homes for their own safety. In my opinion, this solution will help the police and security companies in the UAE due to the huge number of tourists and citizen in the UAE, especially Dubai. Using AI cameras will identify criminal behavior in three places, such as; in traffic, bricks and mortar facilities, and the tourism sector. This will also help the employee who volunteers to find people in public areas who aren't wearing a mask or to know their temperature. (Shouk, 2018)

On the other hand, AI cameras will help patients who are staying in the hospital as well with the latest AI technologies, especially for surgery (Daley, 2019). As well as using virtual assistance which are using in the healthcare sector that help the patient to contact with doctors easily by using AI cameras technology. (Panesar, 2019)

In the education sector, AI is the best solution to monitor students and use face recognition as a way to know who enters the school, especially if there is a stranger or any person that doesn't have permission. Instead, this technology can be used to count people as well (Wilber, 2019), China is one of the

countries that uses AI cameras in their schools. Along with the features stated above, they use AI technologies on exams as well and to analyze student's faces to see if they are dozing off in class, and when they enter and leave school (Yujie, 2019).

Moving to the fashion sector, which is very attractive and people need to have technologies on it as well. For instance, having AI in this sector is a must specially for women who like to dress well and look better. People need to try on clothes before buying them to know how well they look on them. In order to avoid waiting in the queue to enter the fitting room to try the clothes. the smart mirror will be the best solution because it uses AI features (Luce, 2019).

Many countries worldwide are using AI. For example, in Belarus they used video data processing and recognition software for smart city systems to solve the following problems: tracking any movement and monitoring human activities, detecting fires early, and detecting space when parking. (University, 2021). In the UK, especially in the University College London Hospital, they are using artificial intelligence to help diagnose cancer by utilizing a new tool to capture what's inside the patient's esophagus which is a tiny camera, called CADU. (Fleming, 2021)

To summarize, I recommend avoiding using normal cameras and to start using artificial intelligence cameras for many reasons which will be analyzed more in depth below with examples. In conclusion, the use of AI cameras will facilitate people's lives by producing new jobs, save a lot of money in several sectors such as healthcare, and will facilitate government work. (5 Ways AI is Changing our World for the Better, 2019)

Chapter 3 - Project Description

As stated above, there are many issues while using a normal camera. We have to consider better solutions and learn from other countries who have started applying AI technology in these sectors. In reality, in the UAE they have already started using this technology and they have several projects underway such as in the Dubai Police. However, the technology continuously develops, and people should be aware of that. Furthermore, it's very important to have cameras in public places, hospitals, schools, and other places. Below are some issues addressed in several sectors such as healthcare, education, the public area, and the fashion sector.

3.1 Healthcare sector

Several things are connected to the healthcare sector and Artificial Intelligence. Nowadays people demand more than earlier, and they expect a new technology to facilitate their lives. On the other hand, there are also many achievements in the healthcare sector, for example, in Dubai, government clinics develop a machine that sends the medicine directly to the employee while he is sitting in his office. Although there are several technologies that must be updated continuously.

The issues that we face in the UAE like taking care the elderly, where previously solved by sending a nurse to the elderly patient 's home and he/she would take care of the patient who is for example suffering from diabetes, or high blood pressure. Regardless of the disease, it will be tough for him if no one is at home with him.

Another issue that healthcare may face is performing surgeries and the number of surgeries that take place in the UAE. On the other hand, many patients trust their doctors. Due to the high number of surgeries in the UAE, sometimes they can't find an appointment with their favorite doctor, and they cannot trust others. I did a survey to gather and analyze people's opinions, and the question I asked was "In the current situation we face difficulties to travel due to the government rules. Imagine that you need to do an operation or surgery, and your doctor is from another country (USA). He recommends you to use technologies such as AI cameras and robots to do the operation or surgery from his screen in his country. Thus, do you think that you will be confident and relaxed if this happens?". The purpose of this question is to know their opinion about using new technologies and their feelings about using AI cameras. Some of

them supported the idea and others were against having AI cameras without the presence of the doctor. The people who were against this idea mentioned that they trust humans more than robots and that they did not feel safe since problems could happen during the surgery such as a connection error, and because it's difficult to control it becomes scary. Additionally, some of them emphasized the fact that this is a new idea and they don't know the consequences. The patients would trust AI technology if this surgery takes place in the UAE, and they trust the doctor who has a lot of experience using AI technologies. On the other hand, some people think that the doctor's view is limited even if they have experience, because he might lack expertise in the technologies used, and it might cost the life of the patient. So, basically it is not the same when the doctor performs the surgery in the person knowing what happens around him. Instead, people don't trust technologies and they consider it a serious issue especially if it's not in human hands. One of the answers was that "I think it is a genius idea, but I will not expose myself to the risk of such a "robot hand operation" because it may malfunction at any point during the operation or errors occur. In the end, it's a machine, it can be damaged at any moment and my body will not be secure. And another point, we have heard a lot about medical errors that occur during operations when doctors that are in the hospital and the patient is in front of him. how will I protect my body when the doctor will be outside the country and will operate on me with the hand of a robot? So, the answer is absolutely no".

Generally, most of them are against using AI because they don't trust technologies and they are afraid of this new experience. The people who support having AI cameras with robots agreed because they care about their health and there was no other chance to travel. Instead, one of them agreed since the robots don't make mistakes. To summarize, they believe that human error is minimized using AI cameras and robots, and only agree to do it if such a surgery was done successfully before to avoid any technical problems.

3.2 Education sector

The education sector in the UAE is quickly growing and developing year by year. The students in the UAE are lucky since they use the latest technologies to learn, however, all schools now use systems that allow the students to do their exams online at school and check their results online. This is due to the fact that the UAE government is a forerunner in providing the latest technologies for students and teachers. Due to Covid-19, the education sector was affected globally, and unexpectedly the government decided on utilizing distance learning for all students. The challenges of having an online exam at home are that some schools or universities forced the students to open the cameras to avoid cheating, and most of them face

difficulties while opening the camera because the camera would disconnect suddenly, they did not feel comfortable, they were nervous and stressed. In addition, children online had difficulties with the teachers. Teachers also faced difficulties monitoring many students at the same time.

Conversely, the schools are opens now, and the challenges are in how to know who enters or leaves the school, or who is wearing a mask on campus. On the other hand, UAE needs a technology that will allow parents to know their children's behavior at school, and their activities, and it is not practical to call every time or to visit the school, it is also not practical for teachers to send the report to the parents manually by email or by phone.

3.3 Public area

Having cameras in public areas is a must, nonetheless, it is a challenge, since every year we hear of new technologies being applied in the market. Having these cameras will guide the police so that they may avoid problems and know people's data. Due to the coronavirus pandemic, everyone has to wear a mask and this is a challenge for the police because it makes it more difficult to recognize faces. This is a problem because it is very important to be able to recognize faces at work, schools, airports, and supermarkets. As well as, in the public areas. It's tough to monitor everyone at once to see who is wearing a mask and who isn't. This issue is happening here in the UAE, I visited many malls in Dubai and I saw that a single security man stands up near the entrance with the camera to check only the temperature. In addition, some volunteers will walk around the mall only to check who is wearing a mask or not, and this isn't practical.

Another problem that may arise is in the brand boutiques. Once my friend went to one of these boutiques and tried a ring, she forgot she had the ring on her hand and she left the boutique. After an hour she noticed that the ring was still on her hand, so she then went quickly back to the boutique. The salesman was shocked since nobody had noticed that the ring wasn't in the display, so this means it would be relatively easy for others to steal any gold or accessories. By the way, they have cameras but not with the latest technologies, which is an issue for them.

The best example of AI cameras was implemented at Tesco supermarket. They installed cameras at self-service checkouts to recognize customers' faces and record their faces and data. The purpose of that is to protect customers, employees, and stock. (ENOCH, 2018)

Another example is Athena Security Company who are using AI cameras for security purposes in order to recognize a range of guns and deadly weapons, and spot a gun in several areas and the near vicinity(Kanchwala, 2018)

3.4 Fashion sector

Many people around the world especially women, take care of their style and elegance. The number of fashion stores here in the UAE is huge. Women spend a lot of money on their style, even though this industry does not use artificial intelligence technologies. The problem while I'm shopping, is that I face a challenge when trying on the clothes. Since I'm wearing an Abaya, I don't like to change and try on clothes everytime I go to inside a store. This is an issue for many people, especially if the place is crowded and there are not enough fitting rooms. To avoid waiting in the queue and trying the clothes in each store, using technologies is a must (Luce, 2019).

Chapter 4 - Project Analysis

## 4.1   Questionnaire Analysis

A total of 23 questionnaires were distributed among several men and women whose age is between 20 and more than 35. Only 71 responses were received, and I found most of the answers to be adequate. This represented an effective response rate. The discarded responses were from respondents who failed to meet the required quality and consistency checks used in the screening process. Therefore, although the 23 questionnaires analyzed general information and specific information, only some of the questions were used for this research study below and the others were stated in some sections of the project.

4.2   Questionnaire results

4.2.1 : Question 1

In this research, most females answered the questions, and their ages are mostly above 30. Mainly, 94.2% of people enjoy having technology in their life. They feel that they can't live without technology. This question will become important to have technology in their cameras as well, and they will adapt if they have AI cameras in their homes.
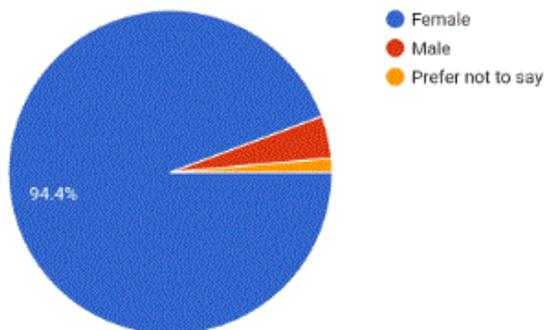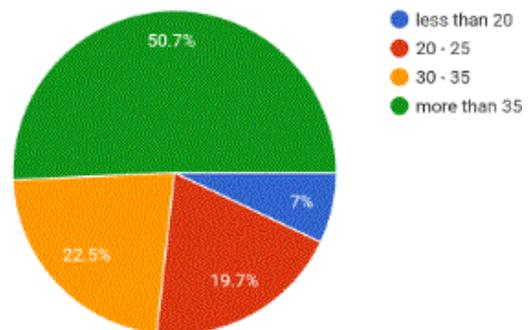

Figure 2 Gender & Age Group

4.2.2 : Question 2: AI awareness

Approximately 82% were somewhat familiar with artificial intelligence, and 18% were not familiar with AI.
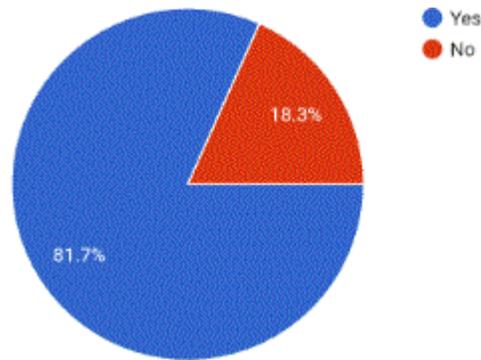

Figure 3 AI familiar

4.2.3 : Question 3: AI cameras Implementation

Additionally, I asked people how they would feel about implementing an AI camera into their home. 41% were excited about having AI cameras at home, and 21% were scared to implement that at home. The people who were excited about having that did not feel that it was dangerous to implement it since it's very secure and safe and it improves our lifestyle and makes our lives easier. Generally, they think it is safe since it would help the security sectors to analyze photos and recognize individuals from their faces when the camera takes a photo of someone walking. Also, people think that it isn't dangerous to implement AI cameras since it would be achieving what is too difficult for human beings and doing tedious things in place of human beings.

The other people said that AI cameras will be dangerous if they were implemented at home or in public places. They commented that some people may misuse it to threaten others by using their personal information for criminal purposes. Also, most people do not like to share their personal information with people who do not know them. Moreover, it can reduce the intelligence of human beings and in thefuture can make people use the artificial mind more than their minds and it would affect our brain efficiency and brainstorming. Someone commented that this kind of artificial intelligence will have

advantages for the government and it should be used by them only because individuals might misuse it and there would be no privacy for individuals which is scary for most people.

When comparing the normal cameras and Artificial Intelligence cameras, most people prefer to have AI cameras since it's more secure and safe. It will find out who the person is and if he is saved or not. It will have so many functions, like identifying and analyzing, it will save time, money & offer a fast response. It also it gives us better vision. Furthermore, it can be helpful for the police but not for individual use. However artificialintelligence improves personal knowledge and it is more innovative. The remaining mentioned that normal cameras are better because individuals will lose their privacy.
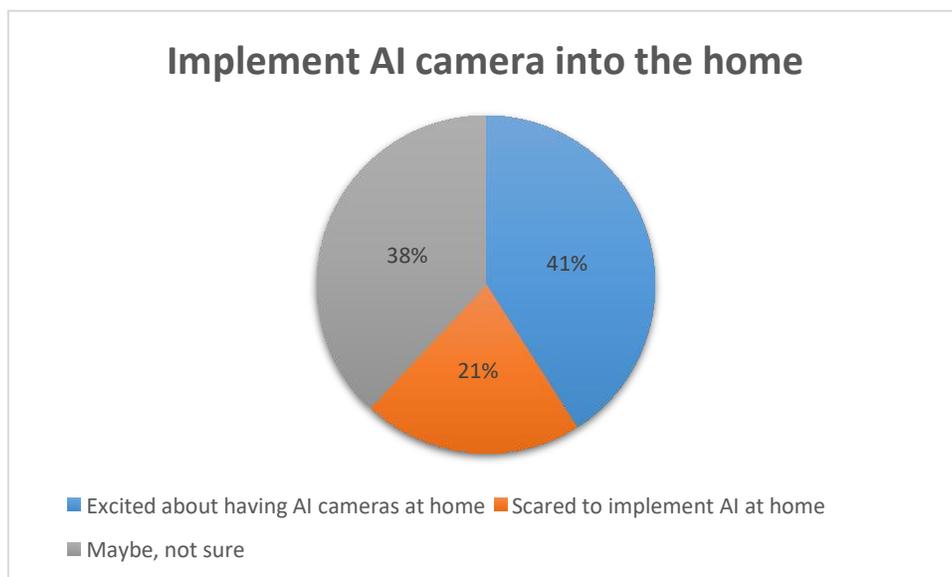

Figure 4 Implement AI camera into the home

4.2.4 : Question 4:

71% of people does not mind if the Artificial Intelligence camera saves their face and take the data forsafety purposes. And 63% agree that AI cameras will save them from criminals, while 34% neither agreenor disagree about that.
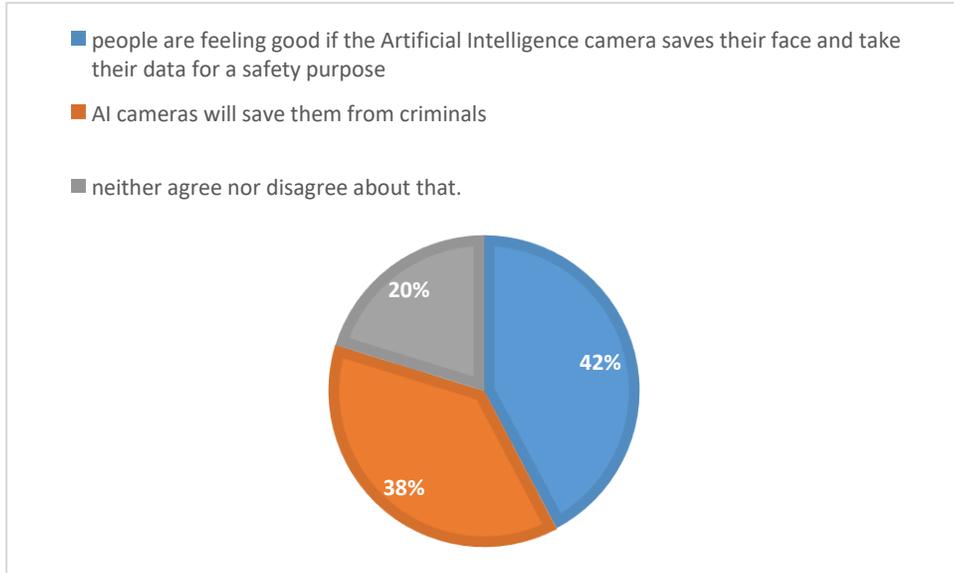
Figure 5 what people feel about AI

4.2.5 : Question 5: AI cameras applications

Roughly 74% of people satisfied to use home security like installing AI cameras. The percentage varies among driving, customer service, financial service, automated system, and surgery which is the lowest at 36.6%.
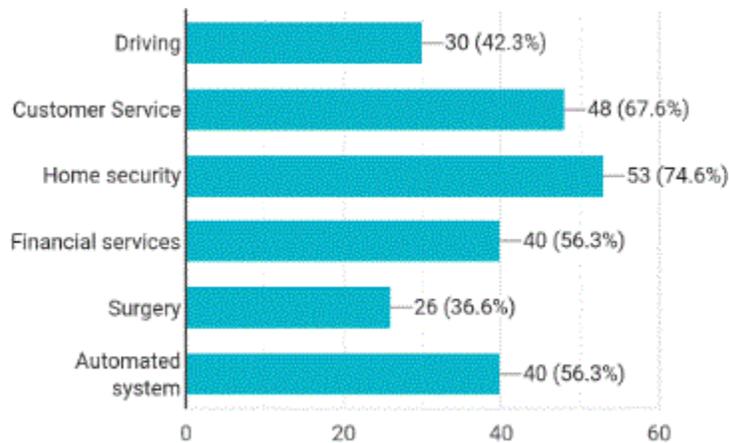
. Figure xxx illustrates the respondent's answers

Figure 6 AI in several sectors

4.2.6 : Question 6: AI Cameras for Road Safety

The respondents were asked about what they thought about AI cameras recording their car plate details while they are driving on the street. The majority (40%) answered that the Dubai Police would benefit from it, while only (20%) disagreed and thought that Dubai police shouldn't record their data. Also, (32%) of respondents agree thatthe usage of AI cameras provides safety, while only 8% disagreed. Figure xxx illustrates the respondent's answers.
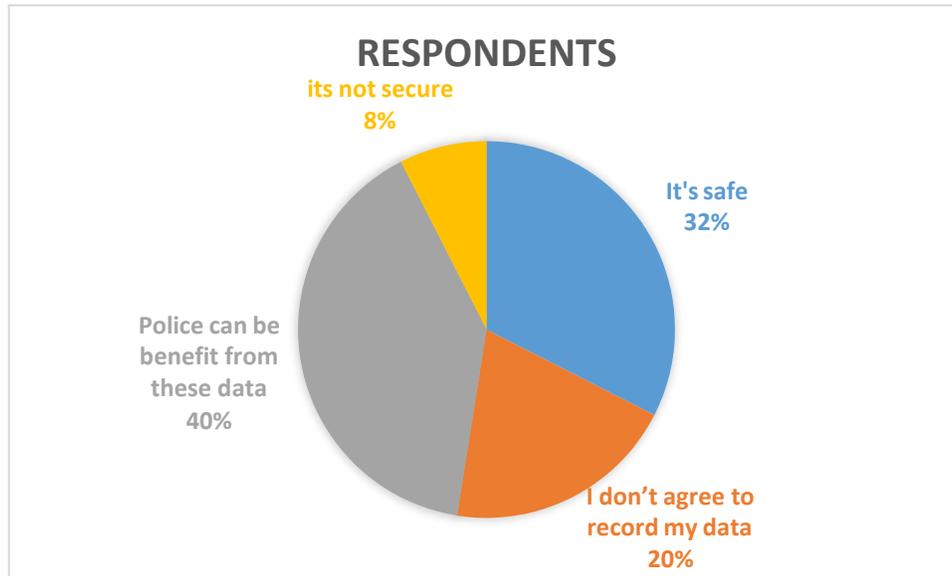

Figure 7 Usage AI cameras for road safety

ANSWER CHOICES	▼	RESPONSES
▼ it's Safe		37.14%
▼ I don't agree to record my car details		22.86%
▼ Police can be benefit from these data		45.71%
▼ It's not secure		8.57%

Figure 8 Having AI cameras to record their car details while driving

I specify the questions as well to be asked in each sector to know people comments and how they are feeling by using AI.

4.2.7 : Question 7: AI cameras in Education

I asked people if they would prefer to use Artificial Intelligence technology in the Education sector. Approximately 70%answered yes, 8% said no-and 21% of respondents were not really sure.
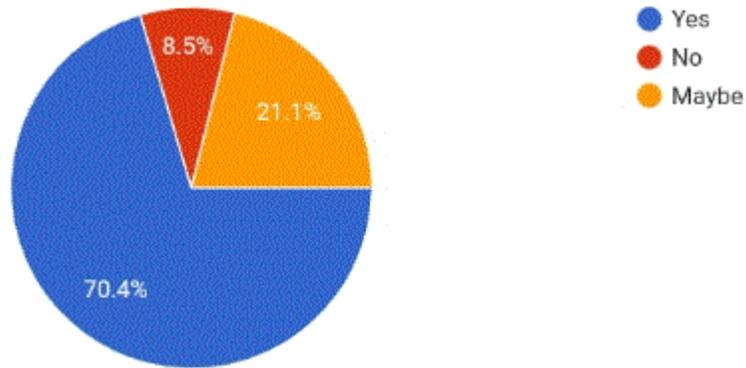

Figure 9 using AI in Education sector

4.2.8 : Question 8: AI Cameras Safety in School

Another question I asked was what they thought of the idea of using AI cameras to recognize children's face and send a message or alert that their children arrived or left the school at a certain time for their own safety. The answers varied from strongly agree to strongly disagree as shown below.
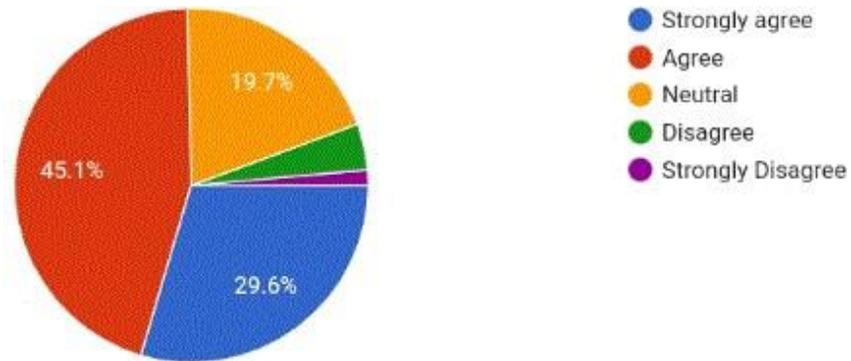
.

Figure 10 AI recognize children face

4.2.9 : Question 9: AI cameras monitoring students

On other hand, I asked if AI would help teachers monitor their students while doing their exams online. Most recipients agreed (35%), 31% strongly agreed, 20% were neutral, and the rest disagree and strongly disagree by more than 11%.
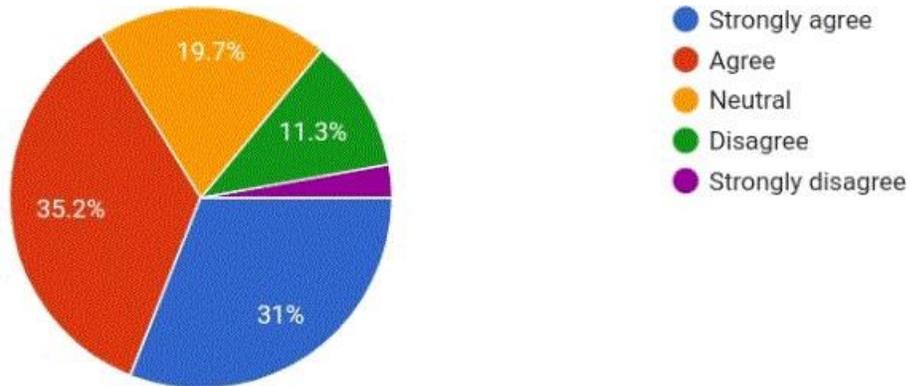

Figure 11 Teachers monitor students by AI technology

4.2.10 : Question 10: Robots in Education

The results below show if people think that students will adapt to being taught by a robot rather than having a teacher in the class.
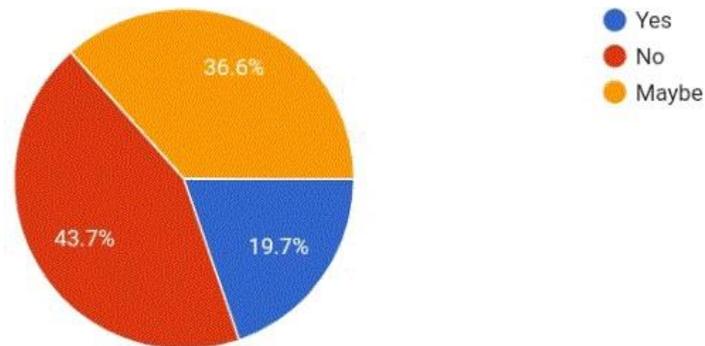

Figure 12 Robot teaching

4.2.11 : Question 11: AI cameras in Retail Industry

What people think about the accuracy of the camera that checks the temperature in malls and public areas.
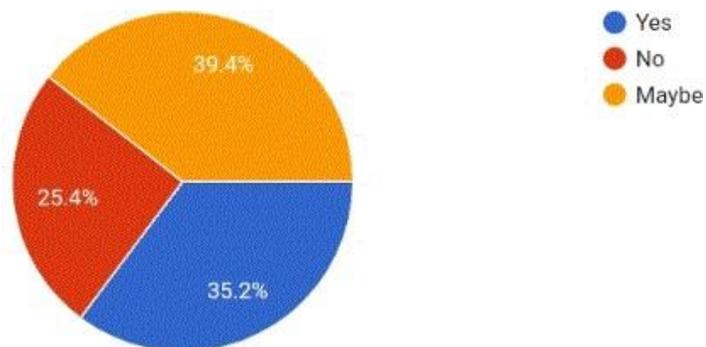
Figure 13 Temperature accuracy

4.2.12 : Question 12: AI cameras safety

What people think about AI cameras recognizing their faces if any usual things happen in the public area or criminal face, and sharing this information with the police? Do they feel that they will be safe and secure? The results are shown below:

Figure 14 AI cameras in public area

4.2.13 : Question 13: AI cameras in Hospitality sector

Do people agree that companies should use an AI screen to help and guide people in the reception area, ratherthan having an employee?

Figure 15 AI screen in reception area

4.2.14 : Question 14: AI cameras in home

How people feel implementing an AI camera into their home.

Figure 16 AI camera at home
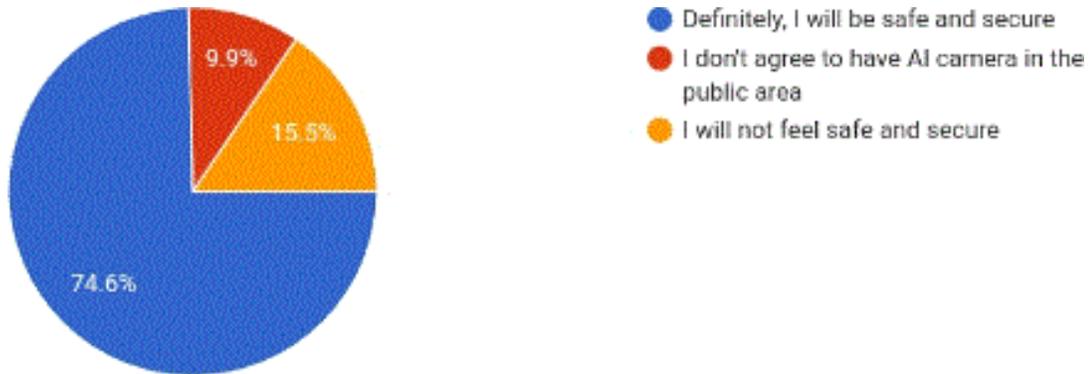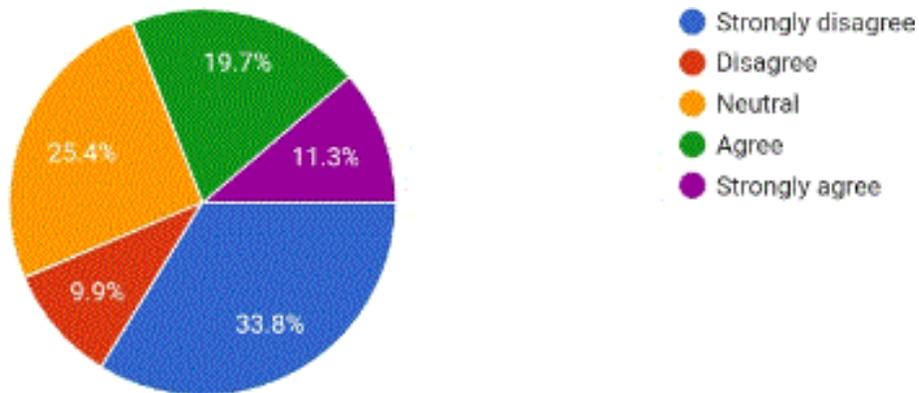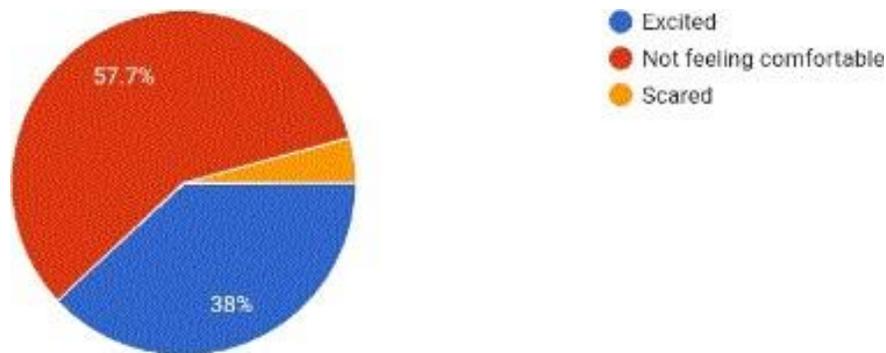
To summarize, from the responses collected through the questionnaire, 94.2% of women prefer technology in their lives. Although the high preference does not relate to artificial intelligence (AI) cameras, it still indicates that individuals may not oppose such technology. On the other hand, there is a high familiarity by 82% with AI. Although this is the case, only a few people (41%) are willing to adopt the use of AI cameras, while 21% note that they are scared. With those inclined to technological adoption denoting safety and security, the opposition to the technology is due to concerns around the loss of personal information. Only 71% of the respondents are willing to have cameras take their pictures for safety purposes, and 40% note that such an approach can improve road safety. Also, 70% of the respondents note that technology can improve education, while 45.1% associate it with safety for their children. Although this is the case, over half of the respondents do not feel comfortable implementing technology in their homes, even though most have no problems with having cameras in public spaces. The evidence collected from the questionnaire is conclusive on the idea that people may not be wary of all the benefits portended by technology and exhibit opposition due to safety threats.

However, there is a need to increase the number of survey respondents to improve the results of the questionnaire tests in the future. Increasing the sample size will help in generating outcomes that are generalizable to the larger population. A larger sample size provides more accurate and credible results. Despite this issue, the survey results described above may accurately represent the perceptions of AI use in several sectors. Therefore, the concerns about safety and the protection of personal information are the leading issues in adopting technology in different areas worldwide.

Chapter 5 - AI Industry Use Cases

After analyzing the issues above in each sector, here are some cases where people and employee can also benefit in the UAE.

5.1 AI in healthcare industry

In this section, which is related to Artificial Intelligence in the health sector, I display below two examples that were implemented in the UK and in Rochester and how the UAE can benefit from AI.

The UK is using virtual assistance. The reason they have this service is to remind the patients,make calls, SMS, etc. On the other hand, the whole world is suffering because of Covid-19, and to applysocial distancing, we have to apply virtual assistant and focus on AI cameras. When the nurse meets the patient online she can know his medical history, track his movement, help him and guide him. Additionally, she can know the patient's condition's if the pressure or diabetes are high or low, or he needs to be transferred to the emergency room immediately. (Panesar, 2019). Connected cameras can track movement to detect falling, triggering the virtual assistant to reach out for help.

Mayo clinic is located in Rochester. In this clinic robots are fortified with cameras as well as other items like surgical instruments and mechanical arms. Additionally, doctors' experience in doing these types of surgeries with robots and AI will help them execute difficult procedures with control and precision.

 Furthermore,the benefit of having these technologies is less pain and shorter recovery time needed. In contrast, in Israel they use Mazor 3D tools which they can use for spinal surgery using Robots and Artificial Intelligence (Daley, 2020).

In regards to the surgeries that happen in the UAE, the best solution is to use Artificial Intelligence cameras with robots. The robots can examine data from medical records, and know the patient's history as well. In addition, AI will lead the doctor's instrument during surgery. In addition, AI cameras will help the doctor know patient's condition such as breathing, heart conditions and other vitals during the surgery. As per Bernard Marr & Co., using AI lead to the reduction of patient's stay in the hospital by 21% (marr,n.d.). As per the analysis above, most of the patients in the UAE will trust these new technologies if the doctors have experience and do several surgeries abroad.

5.2 AI in the Education industry

In this section I worked on how China implemented Artificial intelligence in education sector, and how the UAE can benefit from this technology.

In the education sector, we need to have AI cameras specially in schools and universities. In China, they use facialrecognition cameras and install them in several areas, such as gates, classrooms and other important areas in school. Having facial recognition cameras will allow parents to know when their children arrive or leave the school. It is equally important that have them in the buses. Thanks to this technology parents can know when their children arrive home when they are at work. The purpose of installing Ai cameras is to manage the students and ensure their safety.

The benefit of having these cameras is to know if the student is focusing on the class or not, for example in China they use it to analyze the student's faces to see if they are dozing off in the class (Shen, 2019).

In the survey that I shared, I asked several people about what do they think if their children will be safe if the artificial intelligence camera will recognize their children faces and send a message or alert thatthe children arrive or leave the school at this time? The answers varied among supporters and opponentsbut most of the people are totally agree by 75%.

Due to the Covid-19 pandemic, most students in the UAE are educated remotely and some of them continue to have classes at school. It is hard for one teacher to monitor all the students at once in campus or online if there is a class or exam, when students have to open the camera to avoid cheating and this is not practical. In China, they developed a "class care system", it can bring benefits when both in school and online at home, by being able to recognize faces to observe student behavior to know if they are writing, cheating during an exam, talking to others or sleeping. During exams, these cameras can capture each moment and capture unusual behavior. It then analyses the data for each student's behavior and sendsthe report to their parents every week and the teachers can track their students' weekly score. Likewise, in the online exams, invigilators can recognize who is cheating from the system, for instance if a red square appears on one of the student faces, it means like he is cheating, and it sends an alert to the invigilator to watch this student (as picture). I asked several people if having an AI will help teachers to monitor their student while doing theirexams online, and 66% of them agreed.

It is important to realize that CCS can send AI generated reports to the parents to know how much their children participate in class. The students who go to school every day

have to wear a mask on campus and it is hard for the school management and teachers to manage over 1000 students and check who is wearing it. With CCS it can recognize who is wearing a mask and who is not, then it sends an alert to this student and the management can know which students is not wearing a mask quickly (Yujie, 2019).

Figure 17 using AI to recognize faces at school (Yujie, 2019)

5.3 AI in the public area

In order to solve problems that may arise in public areas, they have to use artificial intelligence cameras with face recognition algorithms, which will help the police avoid problems and recognize people's faces and data. In current years, AI technology with face recognition has become more accurate. The founder of Ntech Lab said that now they can identify people even when their faces are covered with different types of masks, such as medical or balaclava. UAE could provide this Japanese solution since they work, identify people's faces covered with different types of masks and developed this algorithm since wearing mask is common in Japan during cold and flu season (Simonite, 2020)

The best solution that can be applied here in the UAE for AI cameras is the Tesco supermarket example in the UK. In Tesco, they installed artificial intelligence cameras at self-service checkouts to recognize the faces of customers and record their faces and data in operation. The purpose of that is to protect customers, employee and stock. (ENOCH, 2018) This would especially help brand boutiques as well as it would protect their goods.

5.4 AI in fashion industry

Most people are aware about fashion, and need technologies to be displayed in this sector, especially women. This is why they developed smart mirrors.

Smart Mirrors: having smart mirror will avoid waiting in a queue to try clothes in the fitting rooms. The retails have to think about implementing technologies such as having AI camera with some features such as 3D digital assets in their stores to attract customers. The benefit of having smart mirrors is displays product information, and shows how the clothes would fit our bodies as if we were trying them on in reality. Having smart mirrors in these shops would provide customers the chance to try on clothes, and change colors and take photos and videos. Moreover, they can click on the option to directly purchase and collect the clothes from the store, or they can choose the option of home delivery. Furthermore, having a smart mirror will allow the customers to try clothes, sizes which can be useful for alteration without going to the fitting room. (Luce, 2019).

Chapter 6 - Conclusion

To sum up, in the UAE there are several artificial intelligence projects, and the people should adopt these new technologies. Developing this technology in several sectors is a must, AI will facilitate human lives.

In the final analysis, I analyzed and gave a solution to be used in operation for the healthcare sector. I asked several people, and they are still not 100% comfortable with this idea. Instead, several people are happy to have AI in Education, public areas and the fashion sector. Moreover, there are many examples from of other countries that have benefited from it such as China.

To conclude, the benefits of having AI cameras are saving time due to their advance performance, the ability to analyze data in a more efficient manner, read human faces, read cars details, and offer more safety and security. It's very important to have AI in our lives due to advantages it provides us, such as; having less errors, being able to expect what a user will type, search, do and ask, and organize and manage the records well. AI thinks logically and makes decisions with less mistakes and it works 24 hours a day.

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