The Future Of Autonomous Robots

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Abstract

In this paper we look at robot autonomously exploring its environment, today scientific knowledge relentlessly bringing change and comfort in day-to-day life. In Present generation, an autonomous robot has been very popular technology which is widely used in many places and can't leave without it. Robots are used to share the work and act more autonomously in performing the jobs faster than humans. Usually, Robots are more intelligent with endless energy levels and more precise in handling the jobs perfectly. However, we discuss the future of the autonomous robot and how our life will be easier with the complex thing that it hard for us to do it. We have a many question that need answered from some people, so we used a survey as a method to collect some information from people of age 15-22 to know more if the young adult and teenagers have a knowledge of autonomous robots, the important thing from one of the results that we conclude around half responses have seen autonomous robot before. a robot system is built to monitor and recorder for achieving better security and surveillance of indoor environments. This autonomous system is built by using an embedded system to perform specific tasks and function as defined. we contribute some ideas about designing autonomous robot to help us with many things such as built a black box to investigating a crime, and a Fire sensor is used for detection of fire and giving alarm in the environment. We wondered that if human society will accept it or not? And day to day they will get used to it.

Keywords — autonomous robot, automation, robotic technology, inelegant, future robot, acceptance.

I. INTRODUCTION

A. Background

Autonomous robots are intelligent machines capable of performing tasks in the world by themselves, without explicit human control, that's why we called it Autonomous robots. Autonomous robots are expected to see strong growth over the next five years, particularly within supply chain operations that include lower-value, potentially dangerous or high-risk tasks. Autonomous robots have a strong presence already in manufacturing and, The health and education field. Will the Autonomous robots dominate in human life in future? Going forward, Hannaford said, robots will "free up people's brains" to perform other, more complex tasks. But just as the industrial revolution displaced countless humans who performed manual labor, the robotics revolution won't happen — and isn't happening — "without pain and fear and disruption.".

Most certainly, in near future, Robotics will be submitted to a selective pressure under which most of its branches and authors will change. All of that will happen because of several factors: the enormous costs of production and maintenance of such machines; because of the exosystemic and energetic costs of the robots, which are similar if not higher than any other machine; likely due to the saturation of an already seemingly fragile market. Because of that, it is quite important to try to predict the future of intelligent machines in order to focus one's efforts on the appropriate field. Robots have contributed massively to our lives, today researchers are working towards even greater automation, with robots taking over more and more of works to make the things more accurate and efficiency also without hard effort from humans.

B. Literature Review

"The advancing capabilities create new opportunities (and new demands) to envision alternative forms of coordination between people and machine agents as they carry out activities in the world" [6]. The envision is an important step in our paper, we want to envision on how this will affect the relation between the human and autonomous robots by the questions in the survey. There is multiple researches in different field that will help the improvement in autonomous robots. The ARCHES project Is heterogenous, autonomous, and interconnected robotic technology that have been deployed to the space for future missions [10]. It is one of the important applications that will improve humans' knowledge and satisfies the exploration desire. Which will help discovers new useful materials. Additionally, in the industrial field for the autonomous mobile robots, which has a manipulator, normally attached to mobile robots and capable of performing some types of actions on crops.

vehicles in general are shifting to use electric motors as traction systems; therefore, robots in future intelligent farms should be powered with batteries, as should the rest of the devices, including manipulators. [7] vehicles now are switching to use AMR to make the repetitive tasks, which will give the opportunity to humans to focus on more important tasks. With the autonomous system robots should have a detection for cyber-physical threats, that effect the ability to navigate or complete mission, one of the challenges that the researchers had is how to determine the domain from which a threat has originated in a cyber-physical system vehicle, such as an autonomous vehicle, which relies on the integrity and availability. Based on what they wrote "we have presented a mechanism based on Bayesian networks which can receive information in real time from a vehicle's sensors, processing and communication modules and determine whether there is an attack" [4] One of the studies about the AR service robots in the human labor, stated: "service robots will probably take over at least parts of these tasks. This brings about changes in the work of humans who will now render services with the support of robots. In case of a complete takeover of the entire service task, the change would, in an extreme case, imply that humans do not work anymore and become unemployed". [9] The research claim after showing the benefit of the AR, that the robots will take humans jobs and becomes unemployed.

C. Ethical Issues

Ethical issues occur when a given decision, scenario or activity creates a conflict with a society's moral principles. Both individuals and businesses can be involved in these conflicts since any of their activities might be put to question from an ethical standpoint. Individuals are subject to these issues in their relationships with other individuals or in their relationships with organizations and same goes for organizations. The privacy in some of the ethical issues and it is the ability to control who can access information about our private life and our activities everyone know that privacy gave us the power to choose our thoughts and feelings and who we share them with, in autonomous robots we will lose this privacy because of that every robots have their own cameras and recorders to interacts with commands for example a robot working as a cleaner in homes so there will be a lack of privacy to the family members .

Have you ever wondered how new ideas spread across our society and ultimately become accepted and acted on? Actually understanding how an idea spreads and ultimately gets accepted can actually give you a pretty decent idea of how long something can take, so we should know that at the first society may not accept this new idea , but after a period of time usually everyone will accept it for example a robot performing microsurgery without human being intervention, It's something incredible and unusual to happen and not everyone will accept it in the early days so maybe it will take a long time to have an acceptance from the human society .

II. Methodology

The method that has been used is survey, consisted of 11 multiple choice questions. The data was collected from the age group between 15-22 years. The aim of the survey is to know if young adult and teenagers have a strong knowledge about the automated robots, since they have the most effect in the future of the robotics industry. The survey was published on 25 November 2021 and got 41 responses. The survey was made to be simple, so it will take at most 5 minutes to answer, to collect the maximum number of responses from a small group.
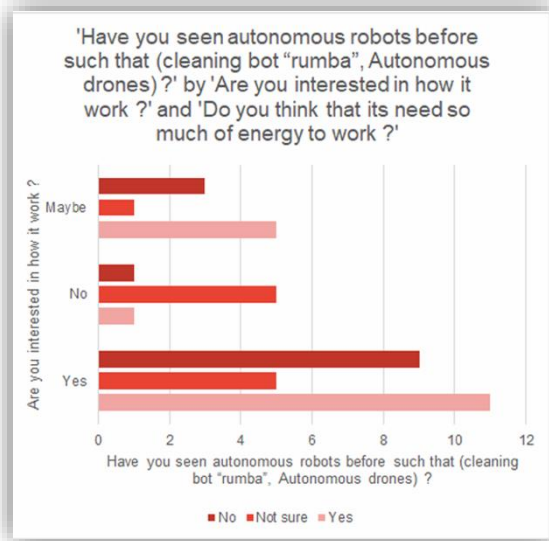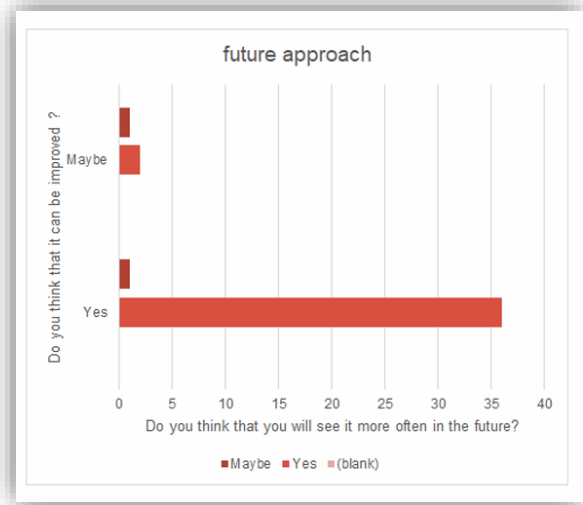
III. RESULT

Figure 1: Result of survey

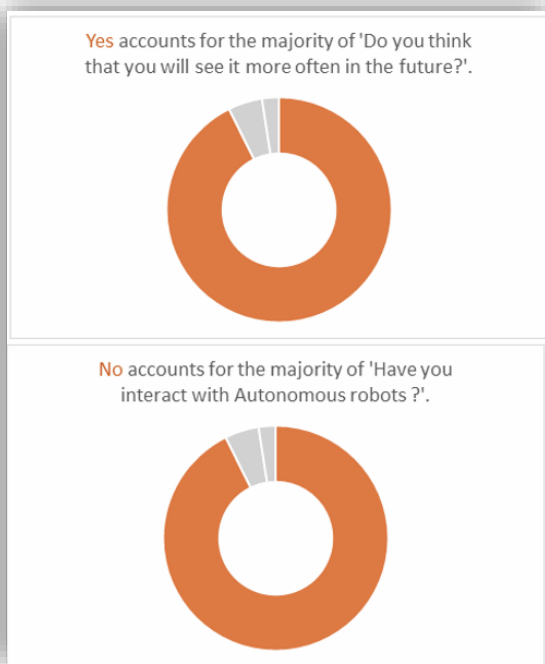*Figure 2 : Result of survey*

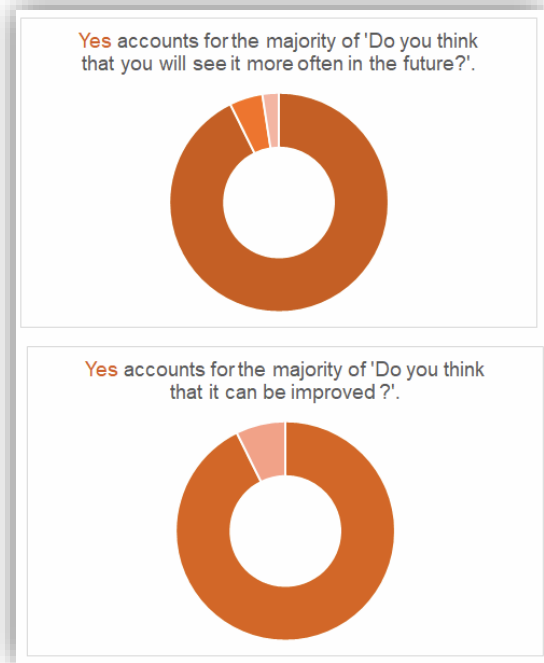

Figure 3 : Result of survey

Figure 4 : Result of survey

In figure [1] and [2] around half of the responses on the first question stated that they have seen autonomous robots before, the majority didn't interact with it only 2% who had. 61% are interested on how it works and 22% might be interested, 31.7% of the responses belief that it does not need so much energy to work, the other 26.8% are not sure, and 41.5% belief that it needs, In the first graph we wanted to restrict the Knowlagent about the AR and most of the answers was "yes".

In figure [3] and [4] 92.7% of the responses belief that it will improve in the future and the other thinks it might improve.95% thinks it will be seen more in the future, the rest thinks it might improve. in the second graph we restricted the responses that it related to the future approach the majority answered with "yes".
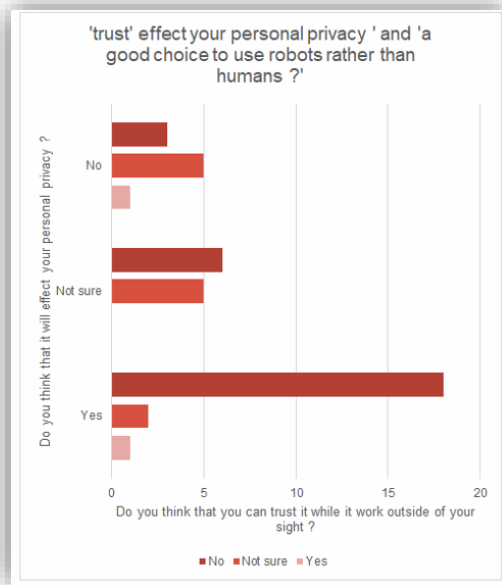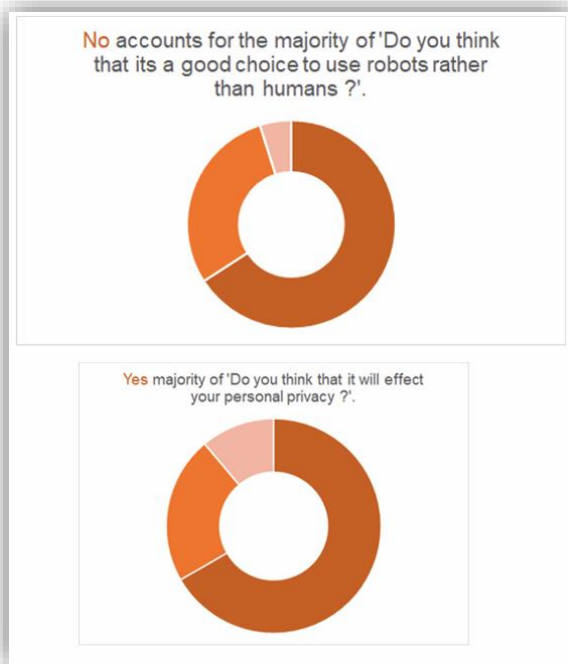
'trust' effect your personal privacy ' and 'a good choice to use robots rather than humans ?'

Figure 5 : Result of survey

Figure 6 : Result of survey

result. The response stated that they cannot trust it, but they can rely on it.

Table 1

	Question	yes	No	Not sure
1	Have you seen autonomous robots before such that (cleaning bot "rumba", Autonomous drones) ?	20	13	8
2	Have you interact with Autonomous robots ?	2	38	0
3	Do you think that you can trust it while it work outside of your sight ?	16	11	14
4	Do you think that its need so much of energy to work ?	17	13	11
5	Do you think that it will affect your personal privacy ?	21	9	11
6	Do you think that it is a good choice to use robots rather than humans ?	2	27	12

Table 2

	Question	yes	No	Maybe
7	Are you interested in how it work ?	25	7	9
8	Do you think that you will see it more often in the future?	38	0	2
9	Do you think that it can be improved ?	38	0	3

In figure [5] and [6] 26.8% of the responses dose not trust the AR while there are outside of their sight, and 39% trust it, the remaining are not sure. Half of the responses represented that the robots are more accurate than the human, while the remaining 9.8% are not sure. 29.3% are not interested on owning AR. 51% of the responses thinks it will affect our personal privacy and 22% thinks it will not effect, the remaining are not sure. Most responses belief that it's a good choice to use robots rather than human and think that they can work harder than human, in the last graph we compered the trust and reliability it is had yields different

10	Are you interested in owning one ?	15	12	14
11	Do you think it can work harder than human	27	9	5

Table 3

	Question	human	robot	Not sure
12	Which you think more accurate human or autonomous robots ?	16	21	4

IV. DISCUSSION

The concept of autonomous robots has been known recently. From the researches that we collected it been in the era of 2000s. In the previous literature they showed us that using the AR in the space is a step for future improvement as what our responses has mentioned [10] Additionally most responses showed as they are interested. In which will lead us to conclude people will cooperate with robots for better future approach [6].

There is different result in wither you can trust the AR, trust is an important aspect in our lives, now we live in technology, and we are engaged in social-technological activity [3]. with every new technology people dose not trust at first, then it will do gradually. one of the benefits of AR that has been known recently was when the covid-19 pandemic started, the robots is one of the promising devices as it provides physical functionality with effective social distancing among the partitions and the medical staff [2]. many hospitals used the AR technology to contact with patients since it will not take the virus and keep the hospital, staff safe, this has shown the benefit of the AR and it will be effective more than human in this situation. the AR are more accurate than humans, so it mostly used in the repetitive tasks, so it been used for a while in the industrial field more often in the food preparation and farming [7].

our responses showed us that people would not want AR to work in human's places. Do people believe the robots will take humans jobs? [9]. Form our responses in which states that it can work harder than human; the majority answered with "yes", people opinions differ in whither robots will take human jobs, it may take it but it also gives an opportunity for jobs in manufacturing. In a previous study people were asked what tasks they are willing to give the robots, so they gave a typical answer; for entertainment, as well as animal, child, and elderly care [11]. The responses mostly want to own an AR for the tasks that we mentioned. Our responses showed the AR will affect their personal privacy in, most of the cybersecurity problems in robotics are due to the lack of awareness among developers of software for robots [8], so it has been taking in consideration to make an AR that resist the cyber-attacks, based on physical sensors [4].

While the AR are more efficient and accurate than humans, its need so much energy to work, one study stated: "Industrial and manufacturing robots are heavy users on a per-unit basis, consuming an average of over 21,000 kWh annually"[5]. Now we reach our hypothesis. will autonomous robot dominate our life? it will not dominate in particular, but it will surely change it in many aspects, and mostly will change it for the better.

V. CONTRIBUTION

we have a great idea about Robotics in public security that we suggests a robots technology that helps humans to detecting crimes containing something like flight recorder . The flight recorder is an electronic recording device placed in an aircraft , They can provide vital information and stores data about planes for the purpose of facilitating the investigation of aviation accidents and incidents. Flight recorders are also known by the misnomer black box—they are, in fact, painted bright orange in color to aid in their recovery after accidents .

The idea is to build up a black box (but for a robot) inside the robots but also with cameras and containing a fire sensor which is used for detection fires and giving alarm in the environment. It preserves the recent history of the sounds and the photoshoots in any place the robot puts in and detecting any fire. If someone try to destroy the robot to delete its data, the data will still stored inside the black box all of the sounds and photoshoot information will still store inside the black box, and this is the important feature of this black box which is withstand many accident scenarios without sustaining damage so it's mean it can't be destroyed.

CONCLUSION

The Autonomous robot is not only a development, but it is a big revolution. The autonomous robots are almost growing up every year, so in near future it will be more advanced than it is these days.

Autonomous robots will help in enhancing the nature of work that human beings do. The fear of dominance of robots is insufficient as human beings have the capability to control their destiny. Humans have the ability to control the social, political, and economic systems with the help of the robots. They can decide to control the population of robots depending on the societal needs. Overall, robot technology will play a significant role in changing human lives positively it will increase efficiency and productivity also improve safety for employees in high-risk work environment.

therefore, people should learn to embrace all the changes that might arise due to the development of autonomous robots. rom the discussions, it is evident that autonomous robots will have both negative and positive changes in the lives of human beings

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