

HUMANOID ROBOT A10

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INTRODUCTION:

Little by little around the world robotics is booming in all areas of science, according to the International Federation of Robotics for February 7, 2018: production automation accelerated worldwide: 74 robot units per per 10,000 employees was the new global average robot density in manufacturing industries (2015: 66 units). By region, the average density of robots in Europe is 99 units, in the Americas 84 and in Asia 63 units.

The 10 most automated countries in the world are: South Korea, Singapore, Germany, Japan, Sweden, Denmark, the United States, Italy, Belgium and Taiwan. This is according to the 2017 world robot statistics released by the International Federation of Robotics (IFR)(Heer, s.f.)

The IFR says that we are at the beginning of a revolution: the demand for robots has accelerated considerably since 2010, with an increase of 15% per year, due to the great technological advances and the growing tendency to automate plants. It is a market that at that time will exceed US \$ 150,000 million, according to estimates by Bank of America Merrill Lynch.

The most robotic Latin American countries rank far below the list, far from the global average of 69 robots per 10,000 employees.

Mexico ranks 30 with 33 robots for every 10,000 workers, Argentina 36 with 16 units and Brazil 38 with 11. "What these figures show is that, contrary to what many believe, the penetration of robots in the industry is still relatively low Carsten Heer of the IFR tells BBC Mundo.

"At the same time, those same numbers highlight the enormous potential that robotics has to continue growing within economies." The most robotic Latin American countries rank far below the list, far from the global average of 69 robots per 10,000 employees.

According to the World Economic Forum, by 2020 5 million jobs will disappear in the 15 most developed economies in the world due to innovations such as robotics and artificial intelligence.

But optimistic calculations, such as those by technology consultancy Metra Martech, indicate that robots currently in operation have been responsible for the creation of at least 8 million jobs, to which a million more will be added in the coming years.

These are positions directly related to the development and operation of automata, but also indirect jobs in the areas of products and services. So, according to these estimates, the deficit will not only be covered, but will even turn into a surplus. For Carsten Heer of the International Robotics Federation, this cascading effect on the entire economy is explained in a simple formula.

"The use of robots not only creates skilled jobs; it also lowers the cost of products, which in turn arouses more consumer interest and, as a consequence, generates more sales. And more sales always mean more jobs", he assures BBC Mundo. (Seitz, 2017)

With all the aforementioned, it leads to a reflection on Latin America, and in this special case El Salvador, how it is preparing for the new generations for both children and young people, for future new jobs and how to make more competent to the country, therefore the inventor Ademir Bermúdez with his experience in the area of educational robotics, decided to create a series of robots for educational purposes, designed to motivate, undertake, develop and innovate new generations in the construction, programming of robots of service, industrial robots, projects that are developed within the company EsRobotica, among the projects are series A robots, robots in semi-humanoid form, which are programmed in various languages for educational purposes.

AIM:

Create a semi-humanoid Robot to promote robotics in El

penetration of robots in the industry is still relatively low,"

Salvador and Latin America.

MATERIALS AND METHODS:

For this, the inventor took up the idea of his Christopher 4.8 robot, which is a social and service robot, 1.20 cm with 200 functions and programmed in Visual Studio, Arduino and Android, with various sensors such as movement, light, sound, distance, and its memory of 16gb, the robot as such had various modalities such as security, education, health, entertainment, among others, the robot was controlled by cell phone, sound and body movements, a robot that is still under development.

Christopher took up ideas to make a small robot, mostly printed in pieces and easy to use, transport and very attractive for children and young people.

So, the series A emerged: robots for educational purposes to promote mathematics, electronics, 2D and 3D design, 3D printing and programming, relating all this through logic and the processes it carries, thus the first series A robots emerged. from A00 to A10.

The A0 robot: being the first, it is the easiest to assemble, program and interact with. Until reaching the most advanced version so far of the A series.

The robot titled: A10 which occupies several components for its assembly among them we have: The materials that were used for each

version are:

- 3D printer
- 1.75mm colored filament
- Servos 180 degrees
- DC motors
- Led's
- Lipo batteries
- Matrix leds 8X8
- Battery charger
- Weld plate
- Cautin
- Tin
- Thermal paste
- Distance sensors
- Mega arduino
- Male x Male jumper cable
- Female x Female jumper cable
- Male x Female jumper cable
- Buzzer
- horns
- Voltage regulators
- Amplifiers
- Other components created by the researcher

CONCLUSIONS:

for the moment due to the COVID-19 it has not been carried out, tests with children, young people of each version of the robot, it is expected to have 5 versions of each robot ready by the beginning of 2021 and to be able to determine if at the end

KEYWORDS:

Robot A10, Arduino, STEM

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