**Apresentação SASYR**

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Hello, I am João and today I will present my project developed together with Professor António Moreira entitled by "AUTONOMOUS MOBILE ROBOT FOR CONVENTIONAL WHEELCHAIRS TRANSPORTATION IN Healthcare INSTITUTIONS".

**Enquadramento**

Industry 4.0 presents itself as a new era in which the industry is led by technologies such as robotics, artificial intelligence, and device interconnection. The increasing implementation of robots in industries allows a better quality of service with high accuracy in less time. As a result, these advantages are now in other areas such as medicine or the military to mitigate problems.

In health institutions, the transport of patients is a recurrent, time-consuming, non-ergonomic task and requires the help of assistants. There are solutions such as electric wheelchairs that facilitate patient movement or intelligent wheelchairs that transport patients to their destination autonomously, nevertheless, the high costs of these replacement wheelchairs are a financial obstacle for institutions.

**Justificação do estudo**

To solve this problem this project aims to apply and explore an AMR for the transport of conventional wheelchairs in health institutions.

In this way, this system of services can play an extremely important role both at scientific and social level. At the scientific level, the transport of patients independently in hospital environments can be validated. At the social level,it will allow health institutions to reduce costs, as they can use existing wheelchairs in the transport of patients.

**Metodologias**

The project is divided into three parts:

1. An HMI consisting of an application or website that allows the amr robotto be given orders and transport;

2. A connection to the management system of the institution where it stores all information, such as users, spaces, etc.;

3.Robotic Wheelchair Transport whose main function is to transport wheelchairs quickly and safely. The coupling system will have to be studied and for the developed of this, cameras and microcontrollers will be explored, whose main function is to discover the coupling points of the wheelchair and move the claw for attachment to the chair.

The integration with the information management system of the institution will be a complex process, as it requires partnership with an institution. If it is not possible, it will be simulated.

**Testes e validação**

The validation tests of the system will have three parts: 1) the effectiveness of the chair coupling system, 2) the usability (patient and safety system), and, finally, 3) the efficiency of the application set, a) management system, and b) transport system in typical use cases.

**Conclusão**

To complete the expected outcome of this project will be a robotic system based on ROS to help manage the transportation of wheelchairs in health institutions, increasing availability and reducing the time required for medical personnel in these tasks.