Pulmonary rehabilitation Robot Follower

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***Abstract*—Patients that suffer Chronic Obstructive Pulmonary Disease (COPD) underwent a procedure called Pulmonary Rehabilitation that helps them to improve disease prognosis. During Pulmonary Rehabilitation procedures patients require external oxygen assistance. The oxygen tank cannot be carried by the patient and some external assistance is required. In this work a basic robot follower is proposed to carry the oxygen tank based on a differential tethered scheme. Two algorithms are proposed in a very basic configuration. BLABLABLABLABLABLA**

***Index Terms*—robotics, tethered, COPD**

I. Introduction

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First describe the problem. Cite the japanese work and the work similar to what we were doing that is in the book.

Describe the robot. How it works, the hardware software, python based the devices and tools used and other architectural elements. Add a graph of how it works.

Describe the PVC manufacturing process that Esteban created. The materials and the name of the CNC that they are using to manufacture everything. Add the components.

Describe the active spring using scrapped DVD motors.

Control strategies: describe both of them.

Results: show the results of the control strategy using Webots and also the same strategy with the real robot.

Discuss: Describe how everything worked. Which one is the better and describe how they worked.

II. Materials and Methods

III. Experimental Protocol

To verify the validity of the proposed framework and method,

The experimental protocol used to

The recorded dataset was sampled at 256 Hz and it consisted of a scalp multichannel EEG signal for electrode channels Fz, Cz, Pz, Oz, P3, P4, PO7 and PO8, identified according to the 10-20 International System, for each one of the 8 subjects. The recording device was a research-oriented digital EEG device (g.Mobilab, g.Tec, Austria) and the data acquisition and stimuli delivery were handled by the BCI2000 open source software [**?**].

In order to assess

IV. Results

The purpose of this section is to evaluate the feasibility of both control strategies, their engineering issues.

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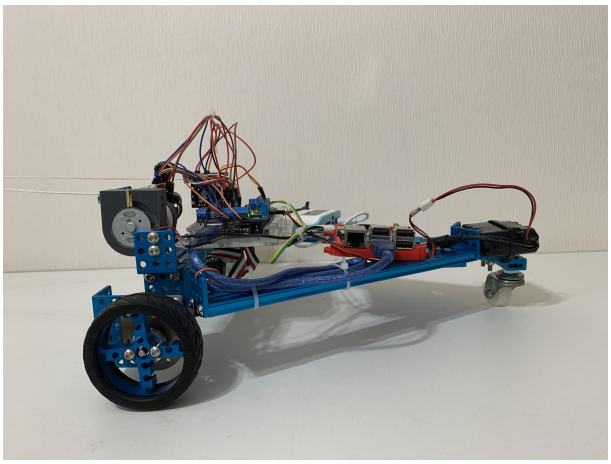

Fig. 1: This robot prototype.

V. Discussion

A. Cliical Assesment

B. Conclusion

The goal of this work is to verify if a tethered robot to implement a following scheme on a patient during a pulmonary rehabilitation procedure is too simplistic to be a factual implementation.

VI. Acknowledgments

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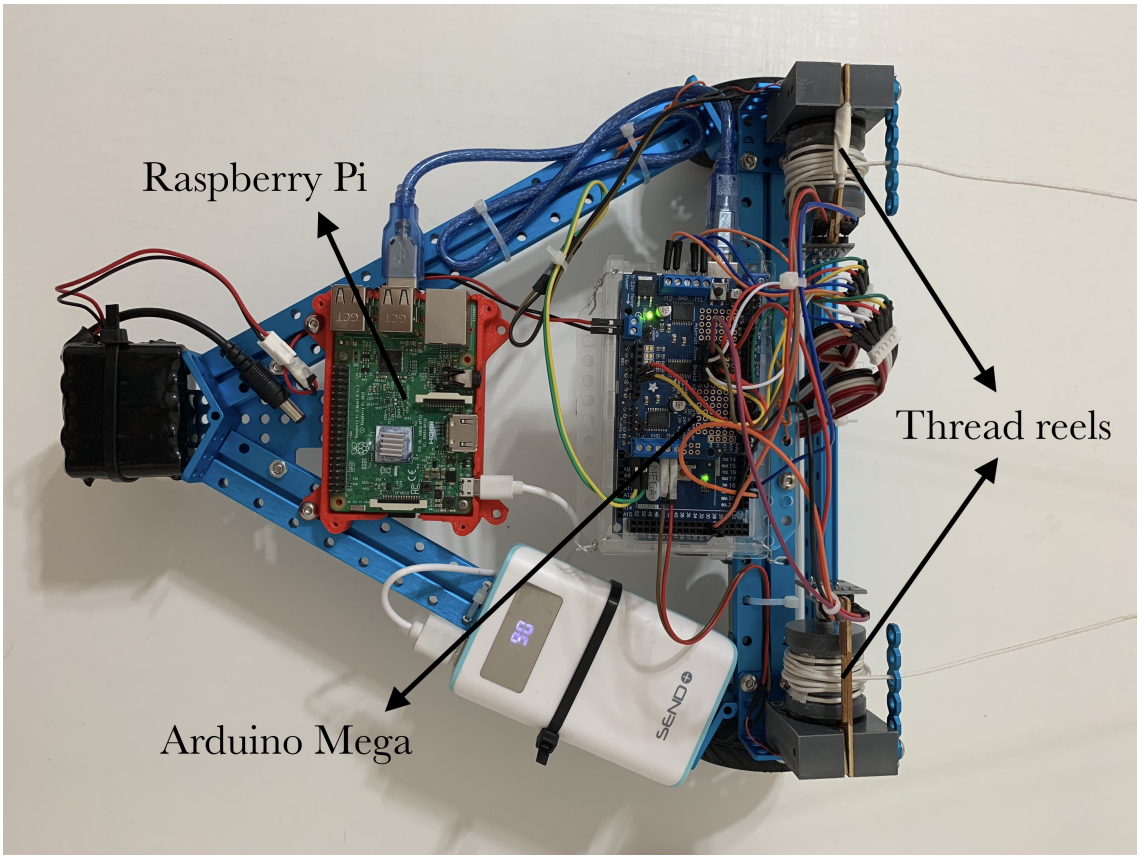
Conflict of Interest Statement

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.



(a) Case I

Fig. 2: Ten sample P300 template patches for subjects 8 (A) and 3 (B) of the ALS Dataset. Downward deflection is positive polarity. The P300 signature waveform is more clearly and consistent characterized for subject 8, whereas for subject 3 the characteristic patterns is more difficult to spot.