

## USE OF SMART PNEUMATICS IN THE CONSTRUCTION OF VEHICLES WITH PNEUMATIC ENGINES

Dan-Florentin ANGELESCU<sup>1</sup>, Ioana - Florentina DUNCA<sup>2</sup>, David-Paul HOLOCIUC<sup>2</sup>, Vlad-Andrei HASCIAR<sup>2</sup>

**Rezumat.** În ultimii 10 ani, industria s-a bazat din ce în ce mai mult pe pneumatica condusă de sisteme moderne controlate de PLC-uri, PAC-uri etc. Echipa noastră a început să dezvolte sisteme mecatronice pneumatice modern, folosind echipamente bazate pe noile tehnologii de control digital. Un astfel de exemplu este un motor pneumatic pentru vehicule cu aer comprimat (CAV). În proiectul nostru, gazul acționează un motor format din două pistoane printr-un sistem de supape controlat electronic, cu ajutorul unui PAC RSTi-EP (Controler Automat Programabil).

**Abstract.** In the last 10 years, the industry has increasingly relied on pneumatics driven by modern systems controlled by PLCs, PACs, etc. Our team has started to develop modern pneumatic mechatronic systems using equipment based on new digital control technologies. One such example is a pneumatic motor for Compressed Air Vehicles (CAVs). In our project, gas operates a motor consisting of two pistons through an electronically controlled valve system, with the help of a PAC RSTi-EP (Programmable Automated Controller).

**Keywords:** Pneumatics, Industry 4.0, Programmable Automation Controller

### 1. Introduction

One of the cars of the future will certainly be the compressed air car. It is cheap, with zero emissions, extremely low maintenance costs, small and easy to park, and with a fairly large interior space. To provide propulsion to the car, the engine only needs compressed air.

The French company Moteur Development International and Zero Pollution Motors from New York (MDI/ZPM) have launched the line of compressed air vehicles called FlowAIR. It includes five models with quite different characteristics. In all models, the driver is positioned in the center of the vehicle. FlowAIR cars are delivered directly from the factory, which eliminates dealer commissions. The range of FlowAIR cars is varied: One FlowAIR, City FlowAIR, Mini FlowAIR, AIRPod.

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<sup>1</sup> Student, U.N.S.T. POLITEHNICA Bucharest, Spl. Independentei 313, Sector 6, ZipCode 060042, Bucharest, E-mail: [angelescu.dan2901@gmail.com](mailto:angelescu.dan2901@gmail.com)

<sup>2</sup> Student, U.N.S.T. POLITEHNICA Bucharest, Spl. Independentei 313, Sector 6, ZipCode 060042, Bucharest.

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