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THE ACTUAL STATE OF DEVELOPMENT OF THE
ECOVITA PROTOTYPE VEHICLE

Adrian CLENCI, Adrian BIZIIAC, Pierre PODEVIN,
Georges DESCOMBES, Rodica NICULESCU

Abstract: *A fundamental feature of the automobiles engines is the great variety of their working regimes. Amongst these, an important weight (80 – 90% of the vehicle's operational life) corresponds to those of low part loads, specific to the urban traffic, thus having an overwhelming contribution to the engine's fuel consumption. Although, the maximum thermal efficiency of the actual spark ignition engine is of about 30 – 35 %, in case of vehicle's urban use, it doesn't exceed 10 – 15%; consequently, it results for the fuel consumption and toxic emissions large values. Therefore, in order to determine a significant improvement of the thermal efficiency, in the present there are looked for the constructive solutions that act especially in the area of these working regimes.*

In case of the spark ignition engine, the quantitative load control by throttling the inlet pipe causes not only the increasing of the pumping work but also the decreasing of the real compression ratio. These drawbacks, caused by throttling load control method, are more important as the load level lowers and in the case of the bigger engines, they are even more amplified. Thus, it can be said that one of the most promising methods of increasing its fuel economy is the throttle-less load control and this is not possible without variable valve actuation.

*Taking all these into consideration, at the University of Pitesti, thanks to a CEEX support, there is in progress the EcoVITA (ECQlogic Vehicle featuring Intake Throttle-less Actuation) project, whose main purpose is to realize an experimental vehicle, which will use as an energetic source an operational engine prototype featuring throttle-less load control by variable valve lift and timing (VVL) and electronic fuel injection. This engine prototype was developed with the aid of a financial support granted in 2005 – 2006 by CNCIS within the frame of a project carried out at the University of Pitesti. **Keywords:** fuel economy, variable valve lift and timing, throttle-less load control.*

Adrian CLENCI, Lecturer, Ph.D., University of Pitesti, Automotive Department,
adi.clenci@upit.ro, +40248218804, 254

Adrian BIZIIAC, Engineer, PhD student at the University of Pitesti,
adrian.biziiac@daciagroup.com

Pierre PODEVIN, Research Engineer, PhD, CNAM Paris, pierre.podevin@cnam.fr

Georges DESCOMBES, Professor, CNAM Paris, georges.descombes@cnam.fr

Rodica NICULESCU, Lecturer, PhD, University of Pitesti, Automotive Department,
rodica.niculescu@upit.ro, +40248218804, 254