



Wankel Rotary Piston Engine Design Project

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Abstract

This study explains the “WANKEL ROTARY PISTON ENGINE DESIGN PROJECT” realized by the students who study at Automotive Technology Department at Iğdır University, Turkey.

Asst. Prof. Dr. Emin Taner ELMAS, who is the Department Head of Division of Motor Vehicles and Transportation Technologies, Department of Automotive Technology, at Vocational School of Higher Education for Technical Sciences of Iğdır University, Turkey, gives information about the WANKEL ROTARY PISTON ENGINE DESIGN PROJECT that the 2nd year students of the Automotive Technology Program were working on during 2021-2022 Academic Year Spring Semester.

Keywords: Wankel Rotary Piston Engine, Internal Combustion Engine.

INTRODUCTION & METHOD, FINDINGS AND DISCUSSION & CONCLUSION

This study explains the “WANKEL ROTARY PISTON ENGINE DESIGN PROJECT” realized by the students who study at Automotive Technology Department at Iğdır University, Turkey.

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Under the advisory of Asst. Prof. Dr. Emin Taner ELMAS, 2nd year students of the Automotive Technology Program named Beytullah Ocak, Muhammed Yunus Gürbüz, Mesut Çınar and Ramazan Yeşilbudak performed their work on developing a revised Wankel Engine design. The project study is based on the principle of modifying and improving the movement-producing part called “Rotor of the Wankel Engine”, which is in the alternative engines class of internal combustion engines and also known as Rotary Engine, and ultimately designing a revised engine with its disadvantages eliminated, 3D modeling and carried out using a specific drawing program.

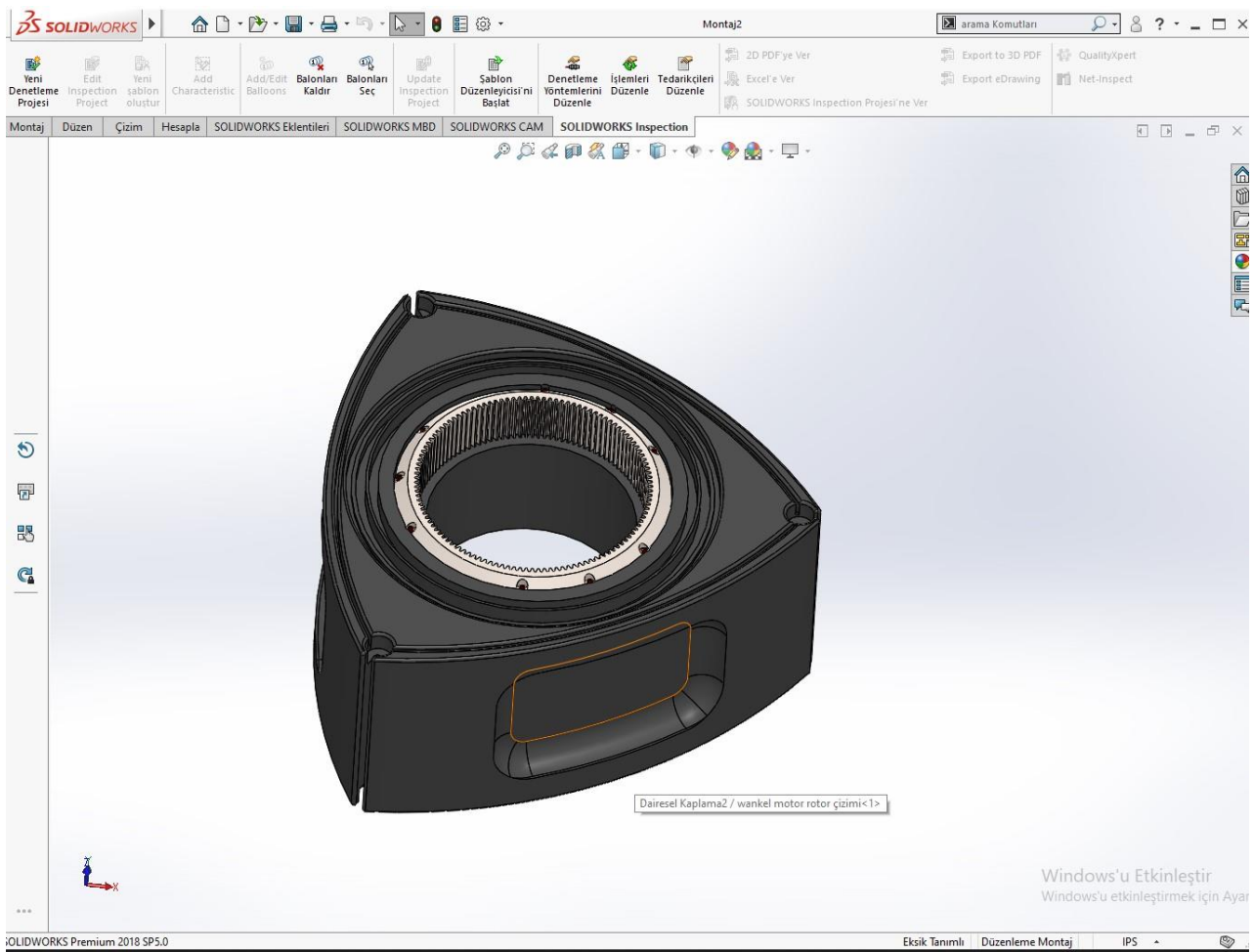
The mentioned students at the above paragraph became interested in this project while they were studying the subject of Wankel Engines in the course called Alternative Engines and Alternative Fuel Systems taught by Asst. Prof. Dr. Emin Taner ELMAS. Stating that the project in question will be revised in the Rotor part, which is the rotating piston of the Wankel Engine, the rotor rings will be redesigned, and that an appropriate type of piston liner sealing part will be placed on the engine block, and that when the project is completed, the modified Wankel engine will have a

superior sealing feature and a long engine life. The engine exhaust emission shall be much better and the fuel consumption will decrease. The volumetric efficiency will increase and the overall engine performance will be greater. The rotor revision will also provide an improved engine sound.

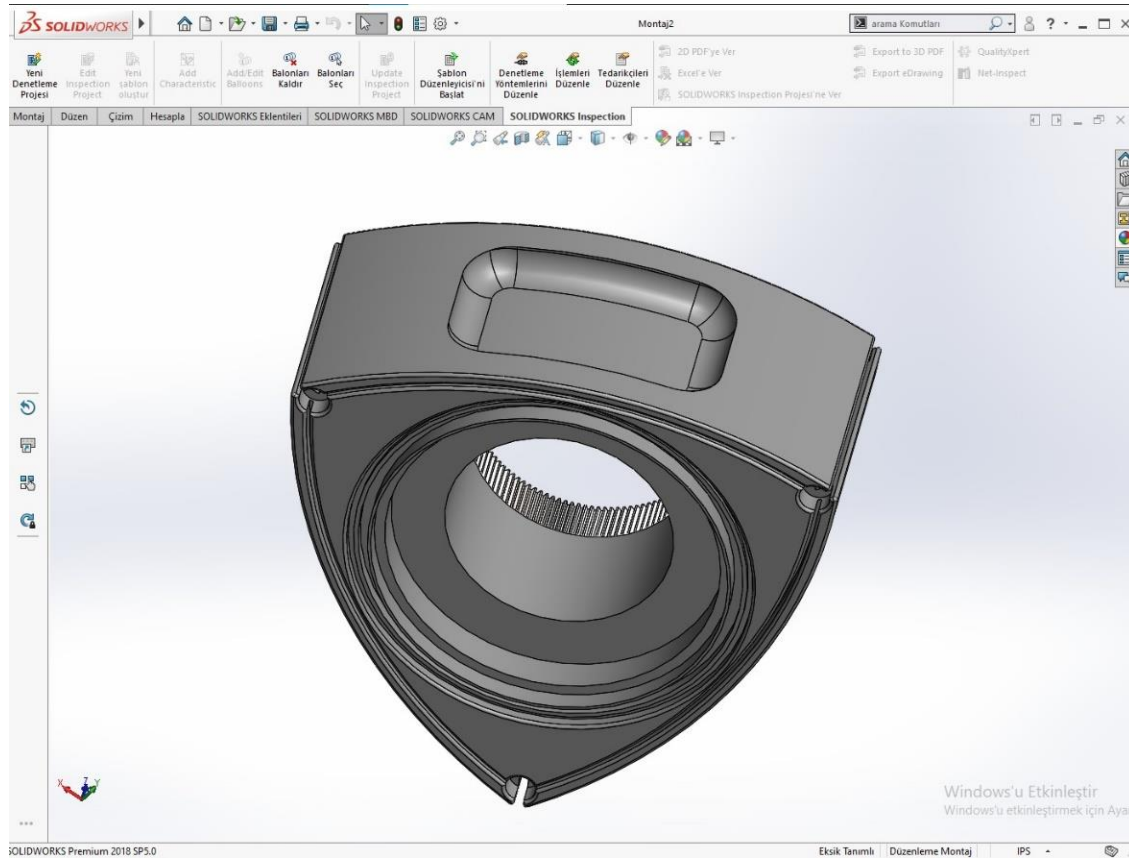
The aim of this project is that such a re-designed and revised Wankel engine can be used for internal combustion engine vehicles, and the ultimate goal is that if this engine can be produced as a domestic and national engine, it can be used in new generation electric hybrid vehicles together with electric motors.

The design drawings produced by the project team are given in Figure 1, Figure 2 and Figure 3, which show the re-designed and revised rotor part of the Wankel Rotary Piston Engine. [1], [2], [3], [4], [5], [6], [7], [8], [9], [10], [11], [12], [13], [14], [15]

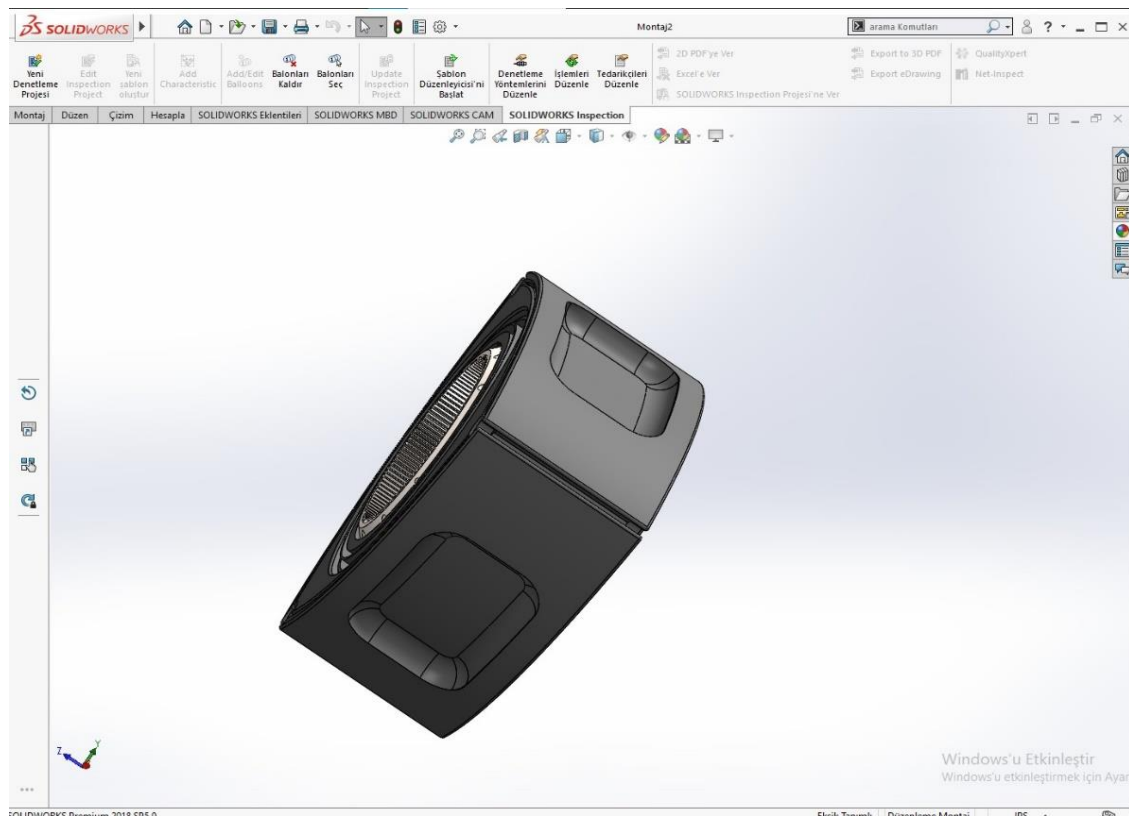
In addition to the fact that it is important for our Automotive Technology students to work on such a project for their own academic development, it is obviously very clear that this project will contribute greatly to the scientific and technical development of both our university and our country.



Figure_1: The drawing shows the re-designed revised rotor part of the Wankel Rotary Piston Engine. [8], [9], [12]



Figure_2: The drawing shows the re-designed revised rotor part of the Wankel Rotary Piston Engine. [8], [9], [12]



Figure_3: The drawing shows the re-designed revised rotor part of the Wankel Rotary Piston Engine. [8], [9], [12]

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