NUMERICAL ANALYSIS OF AUTOMOBILE RADIATOR

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Shivang Rajeshbhai Desai

150303210003

Under the supervision of

Mrs. Swati Prajapati
Mr. Akash Patel

DEPARTMENT OF MECHANICAL ENGINEERING
PARUL INSTITUTE OF ENGINEERING AND TECHNOLOGY
FACULTY OF ENGINEERING & TECHNOLOGY
PARUL UNIVERSITY
P.O. Limda – 391 760, GUJARAT, INDIA

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ABSTRACT

Now a day, the demand of automobile vehicles is on peak. So, it is a great challenge for automotive industries to contribute a powerful and efficient engine. The performance of an engine affects by various systems like fuel supply system, transmission system, lubrication system, cooling system etc. So, it becomes essential to account them while model an engine for improved the engines performance. Cooling system is one of the important systems. It also increases heat transfer and fuel economy which indications to increases the performance of an engine. Most internal combustion engines are fluid cooled using either a liquid or air coolant run through a heat exchanger (radiator) cooled by air. Different research papers have applied different method has been studied and finalized that the various coolants (nanofluids), tubes, fan and core, change efficiency of radiator at different mass flow rate. From the literature study, it has been seen that the efficiency of the radiator has been increased through a variety of methods, out of which radiator fan is the most used one to improving the efficiency of radiator by modification of radiator fan and radiator tube. This review focuses on the various research papers regarding CFD analysis to improve automobile radiator efficiency. Different research papers have applied different methodology and different tools for modeling, meshing and numerical solution. Various results suggest that CFD have been proved very effective in reducing concept-to-production time and cost. CFD results have high correlation level with the actual experimental results.