(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :03/04/2024

(21) Application No.202441027753 A
(43) Publication Date : 12/04/2024

(54) Title of the invention : DESIGN AND MODELING OF COMPACT KNUCKLE FOR ALL TERRAIN VEHICLE

(51) International classification	:G06F0030230000, B62D0007180000, G06F0030000000, B60G0007000000, G06F0030150000
(86) International Application No	:NA
Filing Date	:NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number	:NA
Filing Date	:NA
(62) Divisional to Application Number	:NA
Filing Date	:NA

(71)**Name of Applicant :**
1)Mr. RAVI KUMAR L
Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF MECHANICAL ENGINEERING, SRI SAI RAM ENGINEERING COLLEGE, CHENNAI-600 044 ---------- ----------
2)Mr. PRAVIN CHANDER THAVASHI T J
3)Mr. CHIRANJEEV SANJAY P
4)Mr. JEBISH MOSES J
5)Mr. PARTHESUN D
6)Mr. ARAVINDRAM V
7)Mr. JANARTHANAN M K
8)Mr. RIKESH T
9)Mr. GANANATHJI NAVEEN KISHORE S
10)Mr. AKASH V
Name of Applicant : NA
Address of Applicant : NA
(72)**Name of Inventor :**
1)Mr. RAVI KUMAR L
Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF MECHANICAL ENGINEERING, SRI SAI RAM ENGINEERING COLLEGE, CHENNAI-600 044 ---------- ----------
2)Mr. PRAVIN CHANDER THAVASHI T J
Address of Applicant :STUDENT, DEPARTMENT OF MECHANICAL ENGINEERING, SRI SAI RAM ENGINEERING COLLEGE, CHENNAI-600 044 ---------- ----------
3)Mr. CHIRANJEEV SANJAY P
Address of Applicant :STUDENT, DEPARTMENT OF MECHANICAL ENGINEERING, SRI SAI RAM ENGINEERING COLLEGE, CHENNAI-600 044 ---------- ----------
4)Mr. JEBISH MOSES J
Address of Applicant :STUDENT, DEPARTMENT OF MECHANICAL ENGINEERING, SRI SAI RAM ENGINEERING COLLEGE, CHENNAI-600 044 ---------- ----------
5)Mr. PARTHESUN D
Address of Applicant :STUDENT, DEPARTMENT OF MECHANICAL AND AUTOMATION ENGINEERING, SRI SAI RAM ENGINEERING COLLEGE, CHENNAI-600 044 ---------- ----------
6)Mr. ARAVINDRAM V
Address of Applicant :STUDENT, DEPARTMENT OF MECHANICAL AND AUTOMATION ENGINEERING, SRI SAI RAM ENGINEERING COLLEGE, CHENNAI-600 044 ---------- ----------
7)Mr. JANARTHANAN M K
Address of Applicant :STUDENT, DEPARTMENT OF MECHANICAL AND AUTOMATION ENGINEERING, SRI SAI RAM ENGINEERING COLLEGE, CHENNAI-600 044 ---------- ----------
8)Mr. RIKESH T
Address of Applicant :STUDENT, DEPARTMENT OF MECHANICAL ENGINEERING, SRI SAI RAM ENGINEERING COLLEGE, CHENNAI-600 044 ---------- ----------
9)Mr. GANANATHJI NAVEEN KISHORE S
Address of Applicant :STUDENT, DEPARTMENT OF MECHANICAL ENGINEERING, SRI SAI RAM ENGINEERING COLLEGE, CHENNAI-600 044 ---------- ----------
10)Mr. AKASH V
Address of Applicant :STUDENT, DEPARTMENT OF MECHANICAL AND AUTOMATION ENGINEERING, SRI SAI RAM ENGINEERING COLLEGE, CHENNAI-600 044 ---------- ----------

(57) Abstract :
The steering knuckle is a critical component in the Suspension system that plays a vital role in vehicle maneuverability and stability. Our design presents an innovative approach to a compact steering knuckle, focusing on enhancing performance while reducing weight and size. It employs advanced engineering principles, utilizing computer-aided design (CAD) software and finite element analysis (FEA) simulations to optimize the geometry and material composition of the steering knuckle. By strategically redistributing structural loads and stresses, our design aims to achieve a more compact form without compromising strength or functionality. The proposed design methodology prioritizes efficiency, taking into account factors such as material selection, manufacturing processes, and structural integrity. Through iterative modelling and simulation, the design iteration process aims to refine the geometry to minimize weight and maximize strength, ensuring compliance with industry standards and safety requirements. The outcomes of this research highlight the potential for a more compact and lightweight steering knuckle design that retains and improves upon the performance metrics of traditional designs. The compact nature of the proposed steering knuckle not only contributes to weight reduction but also opens opportunities for enhanced vehicle dynamics and overall efficiency in automotive systems.

No. of Pages : 17 No. of Claims : 10