



DESIGN AND FABRICATION OF MULTI NUT
REMOVER AND TIGHTENER USING
3D PRINTING



A MINI PROJECT REPORT

Submitted by

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IN


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BONAFIDE CERTIFICATE

Certified that this project report "DESIGN AND FABRICATION OF MULTI NUT REMOVER AND TIGHTENER USING 3D PRINTING" is the bonafide work of "M.NITHISH KUMAR (710420114019), A.BINU PREM RAJ (710420114004), R.DEEPAN (710420114307) who carried out the project work under my supervision.


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INTERNAL EXAMINER

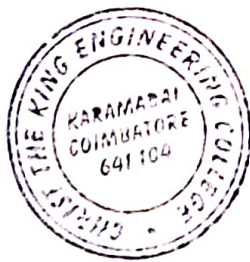


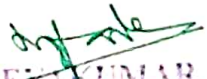

EXTERNAL EXAMINER


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ABSTRACT

We know the standard of living had been increased, most of the families have at least single vehicle, typically a car, to move around easily and quickly. So with the increment in the number of cars so do its tyre failure. Often, the car is provided with wheel nuts remover and jack for instant replacement of the spare tyre. But it is really a difficult process. Based on this we designed vehicle multi wheel nuts tighter and remover. The remover is designed to be of easy maintenance, easy storage, easy to handle and able to remove all nuts at once. It consists of 1 lever on which the pinion gear is fixed and it is driven by an electric motor. Pinion gear drives the 4 spur gears which has 4 shafts with box spanners at the end of each shaft. Thus the all four nuts are removed at once



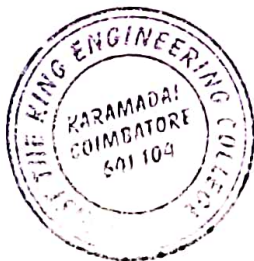

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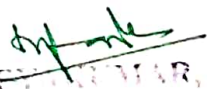
CHAPTER-8

Conclusion

We have introduced one product that is four- wheeler multiple-opening spanners for tightening and removing of the four nuts in a single stroke of a hand operated lever. We have developed a gear planetary mechanism to reduce the time and effort of the person. In our project we have tried to focus on the minimization of human effort and time consumed for fixing all four nuts of the $\phi 112\text{mm}$ PCD tire with a single stroke of lever. It can be successfully used as a standard tool provided with a new vehicle. Also, it can be used in assembly line of automobiles, workshops and service stations.

Thus the design and fabrication of vehicle all wheels nut remover and tightener is successfully done. This project is practically implemented in a four wheeler and it found that the results are positive. The project is economical, and it sustains all the required feasibilities. Vehicles all wheels nut remover and tightener is a perfect tool for assembling and dismantling a wheel in a four wheeler.




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