



Rolling Out the Gen Next Tyre

A research scholar in Sambalpur has designed a new kind of tyre which promises to save lives by preventing tyre blowouts, the cause of many fatal road accidents. Sameer Panda takes Diana Sahu through every step of his invention

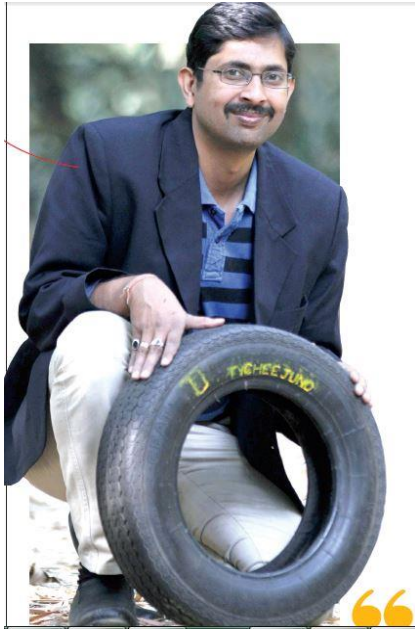
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By [Diana Sahu](#)

A total of 9,748 accidents were reported last year in India due to tyre bursts killing 3,371 persons and injuring 9,081. Even as this piece of data by the Union Road Transport Ministry questions the quality of tyres being manufactured in the country, an Odia engineer has come out with a solution to arrest the menacing problem of accidents due to tyre blowouts.

Sameer Panda, a research scholar of Veer Surendra Sai University of Technology (VSSUT) in Sambalpur has invented a 'Mild Run Flat Tyre', which is manufactured with a Burst Prevention and Puncture Curative (BPPC) technology. It is a multi-chambered tubeless tyre that contains improved variety of sealants to take care of puncture in tread and sidewall and prevent mishaps. His innovation had recently won the 'Create the Future Design Contest- 2015' conducted by NASA and Society of Automobile Engineers, International in New York.

Technology behind the Tyre



Explaining the BPPC technology, Sameer says the traditional sealant (a viscous material) in a normal tyre has several drawbacks like leakage, deterioration due to contact with air, problems in wheel balancing, hardening of rubber and clogging near the tyre valve. “We have developed a sealant that is put inside the multi-chambered tube and in case there is a puncture, the sealant gets hardened after coming in contact with air and immediately fills the leak in the tube.”

A tyre burst occurs due to overheating and high shear, but in this case the sealant works as a coolant and decreases the chances of burst,” he says. Another interesting aspect of this product is that it does not use harmful Lead for wheel balancing unlike other tyres available in the market.

Sameer, who is currently pursuing PhD in Production Engineering at VSSUT, has named his product - TycheeJuno Tyre. It has been produced by his venture TycheeJuno, which is a legal entity working in automobile breakthrough inventions and its Patent & Design Protection.

He says there had been several technologies to limit the impact of tyre punctures in a vehicle, but there has been no solution to decreasing the chances of bursts due to overheating of tyres so far. “This is where our Burst Prevention & Puncture Curative technology comes into picture. The innovation not only decreases the possibility of bursts, but also takes care of punctures,

dynamic wheel balancing and increasing fuel efficiency of a vehicle,” says the engineer, who has done his Masters in Business Law from National Law School, Bengaluru, and is also a Certified Patent Valuation Analyst from Business Development Academy, US.

It is a misconception that tubeless tyres are puncture proof. They only increase the time period of escape of air from the tyre due to which, the puncture is not felt immediately, he says.

He has applied for patent for the product under various jurisdictions. The tyre, Sameer says, can be manufactured in existing manufacturing set up, besides being retrofitted in any tubeless, self-supported or auxiliary supported tyre. It can be used not just in two-wheelers but also, SUVs and heavy commercial vehicles.

Research and Development

Sameer has given a decade of research to the product. “I was extremely lazy in maintaining the tyre pressure of my scooter in college days the tyres used to leak every now and then. In 1998 when I was going for an exam, the tyres leaked and I got very late. A few days later, I got stuck in Bara Pahar forest in my home town when again the tyres were punctured. I was stuck in the forest for six hours as there was no mechanic and public transport. This incident forced me to think about coming up with puncture-proof tyres,” he recalls. He was then a student of engineering in University College of Engineering, Burla (now VSSUT).

He had started working on it in 2005 alone and his professor in Production Engineering, Dr D Mishra of VSSUT tested the first prototype that was created for a Bajaj Scooter. Though the technology worked, the prototype was very heavy, expensive and commercially not viable. He then showed the prototype to his father Dr K N Panda, who is a retired professor of Chemistry and rubber technology, and the latter helped him with technical know-how and funds for further experimentation. “He helped me solve the technical issues like cooling, joining temperature pressure and the process of manufacturing,” he says. His team members Smitiparna Satpathy, an MBA, and Udit Bondia, an engineer, helped him in marketing and testing the product in high speed, respectively.

Commercial Production

The 'GenNext Green' tyre, as Sameer likes to call it, does not have a revenue model yet except for some prize money and small trial sales. "We are in the initial stage of commercialisation with some trial sales. We are meeting potential investors from Indian and the US who understand our technology and are willing to take our idea to the next level of commercialisation," says Smitiparna.