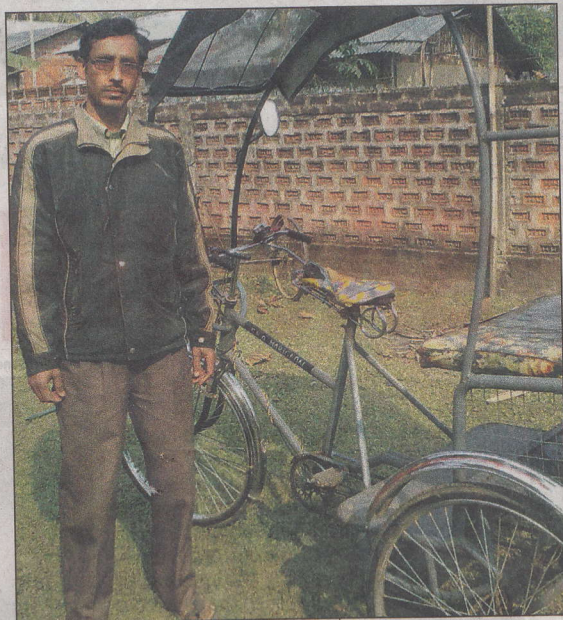


Poverty can't blunt rich mind

Chitra Unnithan | TNN

Ahmedabad: Kanak Das has so many innovations to his credit that even great inventors of the past would have been proud of him. His achievements are particularly worthy of praise because of his poor financial condition which makes a choice between food and raw materials for a new project a difficult decision for this 37-year-old innovator. Yet this man from a village in Assam's Morigaon district has been working on a number of ideas, including a self-charging electronic bicycle, a rickshaw with gear, low-cost power tiller, and a bicycle which can use bumps on the road to move faster.



Das has developed gear for rickshaws; cycles that speed up on hitting bumps

He is perhaps best known for his bicycle that accelerates after crossing a bump. His modified cycle does not slow down after hitting a bump as conventional bicycles do but accelerates because of its ability to convert vertical movement caused by the bumps into horizontal propulsion. Das lost his father at an early age and was brought up by his mother who also passed away when he was in his mid-twenties. Due to the difficult circumstances at home, he could not complete his studies and had to work to earn a living. But that did not prevent him from acquiring a good understanding of science and technology. Much of his understanding of science comes from watching science-based programmes on television. Among other things, Das has made a modification in hand-pulled rickshaws by incorporating a gear which makes them easier to pull. The innovator claims that regular rickshaws don't have a gear system because of maintenance problems. However, the gear system developed by him is easy to install and maintain.

Das has modified one such rickshaw and rented it out to a puller on a daily basis. Seeing the advantages of his gear-equipped rickshaw, a few other pullers have expressed interest in it. The National Innovation Foundation applied for a patent for this product in 2011.

Similarly, Das has developed an e-bike where the energy dissipated by the shock absorbing springs beneath the seat is used to charge the battery. The electricity from this battery is then used to propel the cycle.

Serial inventor's train toilet wins Singapore award

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Ahmedabad: Masha Nazeem, an engineering student, is a serial innovator and has developed eight very interesting projects.



Hailing from Kanyakumari, Masha started designing science model from the age of nine. The National Innovation Foundation (NIF) had received her entries for a competition when she was still in school.



Hi-tech train toilet system:

This is a useful system for Indian Railways to avoid the soiling of railway track at stations. In this proposed system, the toilet waste is stored in a horizontal and cylindrical storage tank fixed under each toilet of the train. This tank can be connected to an underground drainage system through pipes and can be emptied when the train stops at a station. This project fetched her two national awards and one international award from the World Toilet Organization, Singapore.

Flameless seal maker: Among other innovations,

Masha has developed a flameless seal maker which is now being explored by the Election Commission and other government departments. The innovation eliminates the need of flames for sealing—a practice that has been going on since the regime of Mughal emperor Jahangir.

While returning from her school, Masha often used to visit her father's office where she noticed him sealing official documents. Sometimes, he also used to get burned from the candle while sealing. She wondered if there was an alternative way to do this and questioned her father who jokingly asked her to find a way. Taking this as a challenge, after a lot of hits and trials with different materials, she was finally able to develop the flameless seal maker.

Masha's electricity operated flameless seal maker is made in hylam and polypropylene material. Using this seal maker, about 100 seals can be applied safely within 10 minutes. This seal maker is simple, handy and hassle free. Masha herself filed a patent for this device.

This seal maker has been tested in two election booths in Kanyakumari during the recent elections. This was the first time in India that an authoritative

seal as affixed for government purpose without using naked flames was used.

Burglar alarm & VIP security system: Masha's first project in class IV was the alarm, which is an electro-mechanical device to alert about a burglary.

Conveyor belt system: Out of concern for the safety of her friends who had to cross a national highway every day for school, she created a conveyor belt system in a sub way. Students can off load their heavy school bags on the conveyor belt on one side of the road and cross over to the other side through the over head foot bridge and collect their bags on the other side.

Modified fuel dispenser: It is a very simple system to prevent accidental spill over of petrol/diesel while dispensing at the fuel station.

Transparent exam kit: Created to avoid cheating during exams, this transparent box can keep stationery for exam including exam ticket, pens and pencils.

Mechanical porter: A small mechanical porter where luggage can be loaded and then raised to the required height using a jack-like mechanism.