



Microbalance

Consolation

Rajkumar Soni

Narsinghpur, Madhya Pradesh

Background

Twenty-two year old Raj Kumar Soni has developed and crafted a lightweight, portable, low-cost-manual micro-balance for weighing jewellery.

Raj Kumar lives with his parents, a younger brother and an elder sister. His younger brother is pursuing his graduation; all his sisters are postgraduates. His passion for innovations made him to opt out of studies.

He and his father, Dhaniram Soni run a small watch shop near the railway station but the income from this activity is irregular and unpredictable. His father had started the shop after a lot of struggle. Raj Kumar has been making and breaking things since childhood. As he puts it, his life has been a 'jigyasa bhara jeevan'. He has strong support from his mother and sisters but people in his neighborhood simply cannot comprehend or appreciate his pursuit for developing new things.

In 2002, he made a Taj Mahal in silver, which he wishes to gift to the President Dr. Kalam some day.

His craftsmanship in recreating the monument fetched him a district level award from his community. He has also received many accolades for his skills from organizations and trade guilds in his region. In order to encourage his creativity and facilitate his interaction with fellow innovators NIF invited him to attend the Third Award function in January 2005.

Genesis

Once after visiting his jeweler cousin in Durg, Raj Kumar got interested in making jewellery. In 2002, he went to Rajkot to learn the skills in this trade. He did a course in finishing of gold jewellery by 'hand and machine cut' and also a plaster of Paris moulding course. Coming back, he began using a small machine in his father's watch shop for weighing jewellery. Due to the lack of a large capital and the low demand in the village, he makes jewellery only on order. Having got into jewellery making, Raj Kumar wanted to develop a lightweight, low cost weighing microbalance that would not consume power like electronic balances and could be carried anywhere.

Raj Kumar faced many problems, since his technical knowledge was limited. As a teenager, lack of experience coupled with limited financial resources, compelled him to work carefully since he could not afford too many mistakes.

He spent six months and nearly ten thousand rupees in developing first prototype. At first, he used brass and bronze, but had to drop them for he could not solder the components. Finally, he settled for silver and was successful in building up a microbalance with clear classy finish.

Certified Innovation

The microbalance is 25.4 mm wide and 38.1 mm high and it is made entirely of silver. It is suitable for weighing precious metals and stones. Raj Kumar's microbalance, can weigh objects in the range of 20 to 2000 milligrams (0.2 to 2.0 grams). Conventional microbalances have a capacity of 5 to 5000 milligrams. His microbalance itself weighs a mere 8.2 grams, is compact and can be carried in the shirt pocket.

Costing a few hundred rupees, being lightweight,



portable and requiring no power for its operation, it is a better alternative than the bulkier electronic weighing machines costing a few thousand rupees. Local authorities and the Weights and Measurement department have tested the microbalance and have certified its accuracy. This microbalance has been included in the Limca Book of Records 2007 as the smallest silver balance.

Raj Kumar wants to set up a business based on innovations so that these can be used in the service of lower and middle class people of our country. He has also conceived a design for a mechanical washing machine that he believes, will appeal to the non-affluent segments of our population. Raj Kumar's ultimate dream is to see India in the league of developed nations.