1. Nose Surgery Forceps

Plastic surgery to rectify deformed nose traditionally uses chisel and hammer. These instruments will be replaced by a novel pair of forceps, being developed by M.R. Rahul, as part of his M. Tech. project guided by Prof. Rashmi V. Uddanwadikar, based on an initial concept by Dr. S. N. Lulay (ENT Surgeon).

**Definition of Problem:** Plastic surgery of nose, referred to as Rhinoplasty, is taken up to rectify a deformed nose. A common procedure called lateral osteotomy involves breaking the lateral bone of the nose, using a chisel and hammer. This requires a high amount of skill, and has attendant risks of non-uniform cutting of nasal bone, and in some cases, damage to eyes and brain. Hence a better device is required to perform the operation accurately even by an inexperienced surgeon.

**Development of the Forceps:** Based on the suggestion of the ENT surgeon, a scissor type mechanism with detachable blades was designed. Since lateral osteotomy is performed under the skin and the bone is not visible, the design allows for the blades to be inserted and locked before cutting the bone. Considering that the device material should be biocompatible, strong, hard, and maintain its properties during sterilization, stainless steel SS 316 grade was selected. An RP model was first fabricated in plastic and shown to the surgeon for approval.
Dr. Lulay examining the nasal forceps

Deployment Plan: The device is expected to simplify lateral osteotomy, reduce surgery time and improve the accuracy of outcome. The main tasks ahead are to test the metal prototype, first in lab. This will be followed by clinical trials after taking the necessary ethical approvals. Finally, a suitable industrial partner will be identified to manufacture, sell and support the device in hospitals.