Indian Institute of Science
Centre for BioSystems Science and Engineering

SEMINAR

at 4:00 pm on 29th January 2018 (Monday)

MRDG Seminar Hall

BIONIC EAR & BIONIC EYE: PROGRESS AGAINST HEARING DISABILITY & VISUAL IMPAIRMENT

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Thanks to advances in medical technology, health care has definitely improved the quality of life, and longevity of people in the world. At the same time, it is painful to accept that access to some of these health care technologies is unavailable to certain strata of society in many countries due to high cost. The speaker would like to present two case studies dealing with bionic ear and bionic eye which failed to make the necessary progress against hearing disability (deafness and dumbness) as well as visual impairment (blindness). The cochlear implant (also called bionic ear) which can give the gift hearing to profoundly hearing-impaired people is in the market for the last three decades. But, there are nearly 25 million people suffering from profound hearing disability who need cochlear implant prosthesis, but are unable to afford one as each cost around USD Rs 6.0 – 8.0 lakhs. In India alone, we have 1 million deaf people who needs this implant. Talking about blindness, the bionic eye is a retinal prosthesis designed to produce electrical stimulation of the retinal cells to restore a sense of vision in people with profound vision loss due to degenerative retinal conditions. There are 45 million people in the world who are profoundly blind. In India alone 15m are profoundly blind (largest in the world). Bionic eye has been approved in 2015 by FDA in USA for commercial marketing which costs more than Rs 50 lakhs. Most of these disabled people suffer from social isolation, with limited employment opportunities that, in turn, severely affects their quality of life. With a personal average annual income of well below USD 2000 in many countries, it is almost impossible to make progress against these disabilities despite having developed such technologies. In the 21st century, should we allow people to suffer from these disabilities despite having these technologies? Can the government, corporations, non-government organizations, the WHO, the United Nations Children's Fund, and so on, not collectively take care of the disabled by making these technologies affordable? The speaker would like to draw attention to the fact that people with disabilities have equal rights as others. He wants to impress upon conscientious business leaders to embrace a higher purpose beyond making profits to develop a health care access model that is not denied due to the high price of a device.

Dr. V. Bhujanga Rao is currently the ISRO Chair Professor at the National Institute of Advanced Studies. Previously, he was a Distinguished Scientist and Director General of Naval Systems and Materials, DRDO, and formerly the Director of the Naval Science and Technological Laboratory based in Visakhapatnam, where he specialized in many areas of naval engineering including ship design, aeronautics, missiles, acoustics and underwater vehicles. His interests also lead him to work on medical implants and electronics. Dr. Rao is the recipient of numerous national and international awards, and has been conferred with honorary Doctorates from NIT, Kurukshetra and Vikrama Simhapuri Univeristy, Nellore.