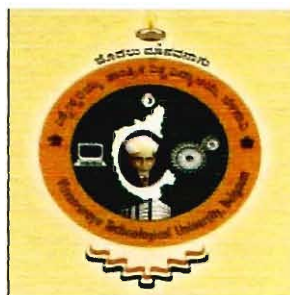


VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM



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Department of Instrumentation Technology

A Project Report on

**Hand gesture based wheel chair controller for disabled
with obstacle sensing
(Approved and Sponsored by K.S.C.S.T)**

Under the Guidance of

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Abstract

The use of powered wheelchairs with high navigational intelligence is one of the great steps towards the integration of severely physically disabled and mentally handicapped people. Driving a wheelchair in domestic environments is a difficult task even for a normal person and becomes even more difficult for people with arms or hands impairments. Tetraplegic people are completely unable to operate a joystick unless they use the tongue, which is obviously a very tedious task. Simultaneously blind and paraplegic people deal with a very uneasy situation which couples two problems: locomotion and localization. The Rob Chair system is being developed to overcome the problems described above, allowing the end-user to just perform safe movements and accomplish some daily life important tasks.

3 Axis Acceleration Sensor Board based on ADXL335 from Analog devices is used for gesture recognition. It is a first generation 3 axis acceleration sensor. User could get acceleration value of X, Y, and Z axis. And it is widely used in shock, slope, and moving detection. Output sensitivity could be select by simply set voltage level on few pins. The output of the sensor is analog mode.

A prototype chair is implemented with a small chair and 60rpm motors are used to move the chair. A free-wheel is arranged to change the chair direction according to user's requirement.