

# WHEELCHAIR USING TILT SENSOR

## ABSTRACT

According to a study conducted by Christopher & Dana Reeve Foundation, nearly every 1 person in 50 is suffering from paralysis due to damaging of nervous system. This figure approximates to 6 million people worldwide and has increased by 33 percent from previous estimation. The causes of Paralysis are mainly due to spinal cord injury stated in the figure. We are using tilt sensor known as accelerometers in our system, accelerometers are also used earlier to monitor patient's physical activities and their posture.

A similar wired system has been developed to assist the physically challenged people suffering from Quadriplegia to control the motion of wheelchair motors by hand movements. This project proposes a system that can assist the disabled people to control the motion of their wheelchair by the hand movements wirelessly. The system proposed can be mounted on primary functioning body part to control the wheelchair movement i.e. hand.

The system consists of a Transmitter which acts as a wireless remote that can be mounted on hand. Transmitter end consists of a microcontroller development board employing tilt sensor which senses the tilt of the platform it is mounted on. The system having positioning of an accelerometer on upper side hand to detect roll (fig. 1) and pitch (fig. 2) angle.

In accordance with these tilt readings microcontroller issues control signals which are wirelessly transmitted through wireless RF module to the receiver. The Receiver is mounted on the wheelchair which controls the DC motors of the wheelchair on the basis of control signals received through RF module. Thus, the direction of wheelchair is controlled.

**BLOCK DIAGRAM:**

