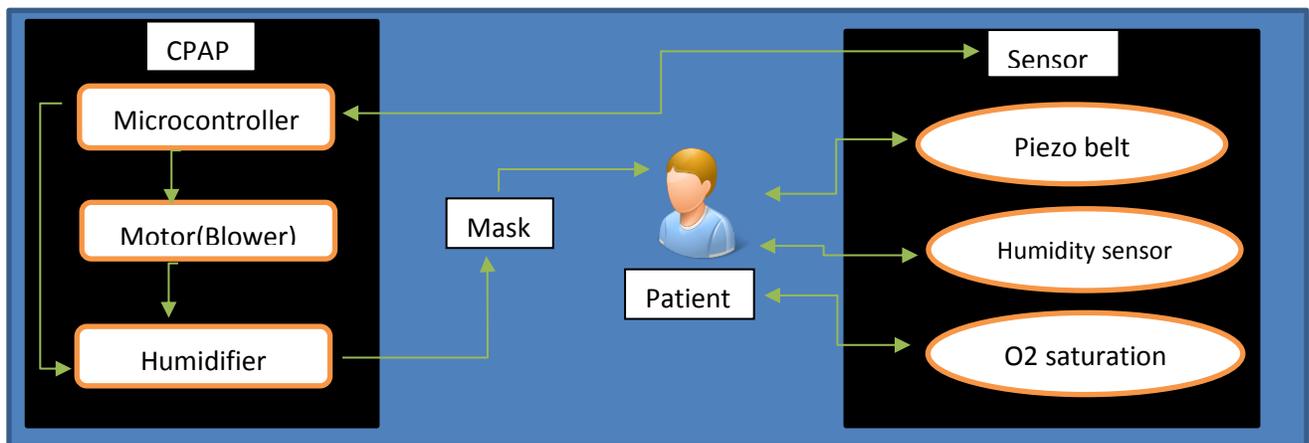


**Title:** Development of Continuous Positive Airway Pressure (CPAP) with discrimination of Obstructive Sleep Apnea and Central Sleep Apnea

**Abstract:** Sleep apnea (AP-ne-ah) is a common sleep disorder which is characterized by pauses in breathing or shallow breaths while you sleep. OSA is a condition leading to increased opposition to airflow which leads to ceasing of complete or partial breath during sleep. The current Indian scenario is that there is a large population which includes the obese, people having various cardiovascular abnormalities with undiagnosed OSAHS leads to difficulties in determining pathophysiology of OSA. Hence, to overcome such difficulties a wider availability of PSG studies as well as awareness must be created against OSA and OSAHS amongst the population. In our project, we are going to make use of three sensors for diagnosis purpose as well as develop an economical CPAP prototype which would be portable as well as in-house a humidifier. This will be a much cheaper version of the existing CPAP machine available in the market hence delivering to weaker section of society where the cost of PSG is still a burden thereby improving the social human life. The scope of work includes diagnosis in which we use piezo belts to track chest movements during event of OSA, humidity sensor to calculate relative humidity of breath to detect delay and temperature difference in breaths during OSA and an oxygen saturation sensor to calculate the oxygen content in body during sleep will help in reducing the cost for diagnosis it also includes treatment in which a prototype version of CPAP is developed with separate compartments for blower and humidifier which will help in understanding the risk and success of various treatment options available.

Keywords: OSAHS (obstructive sleep apnea hypopnea studies), PSG(polysomnography)

**Concept Diagram:**



**OUTCOMES:** 1) Economical instrument prototype design helpful for treatment in rural areas.

2)Application of sensors for real time diagnosis purpose.

**Guide:** Prof. D. N. Sonawane