Starting from small scale laboratories to the highly sophisticated industrial facilities, monitoring and control forms the most integral part. In order to perform this continuous monitoring we require an interface, that would operate between the system and its processing conditions and in turn which facilitates us to act accordingly. This interface is called as a Sensor. There are various types of sensors available which have wide range of functionality in various different fields.

The use of transparent conducting oxide (TCO) in the field of sensor applications has increased and has been the subject of extensive research. Good electrical properties, good optical properties, wide band gap, portability, easy processing, and low cost has led to the extensive research of TCO for sensor applications.

For this research purpose two specific types of sensor applications namely, light sensing and humidity sensing were considered. For this purpose, two sets of metal oxide semiconductor field-effect transistors (MOSFET) with one set having transparent aluminum doped zinc oxide and the other having indium tin oxide respectively as their gate metal were fabricated. The MOSFETs were fabricated using a four level mask and tested.