



**INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
SHORT ABSTRACT OF THESIS**

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Programme of Study : PhD

Thesis Title: ENGINEERING OF HYBRID ORGANIC ELECTROCHEMICAL TRANSISTORS (OECT) AS EMERGING MEDICAL DIAGNOSTICS

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SHORT ABSTRACT

The increasing prevalence of chronic diseases and the increasing emphasis of health institutions on early diagnosis and treatment lead to increased diagnostic and surgical procedures. The prevalence of chronic diseases such as diabetes, cancer and other infectious diseases is increasing due to sedentary lifestyles and other factors. Chronic diseases and the treatment of patients suffering from these diseases put enormous pressure on the health systems of different countries. This has led to a global financial burden in treating these diseases. A patient's hospitalization costs are significantly higher, and longer hospitalizations are associated with a greater financial burden. The increase in hospital care and surgical and diagnostic procedures is driving the demand for medical equipment, including capital equipment and consumer goods, in developed and emerging economies. This is compounded by the increasing investments of the major R&D market players in the development of technologically advanced devices to meet the growing demand for innovative devices. Growing R&D investments by medical technology companies will boost the medical device industry during the forecast period. Moreover, due to the outbreak of the COVID-19 pandemic and the growing health concerns of the population, the market demand for these devices has increased. The customer base of the devices was also increased by the introduction of improved models with new functions and reduced prices by market participants. This provides a huge growth opportunity for new entrants and incumbents to focus on this segment and launch new biomedical devices to meet the growing demand.