

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY  
BELGAUM – 590018**



*A Project report on*

**MICROCONTROLLER BASED ROBOTIC HAND WITH OBJECT  
SENSING SYSTEM**

*Submitted for partial fulfillment of the requirement for the award of the degree of  
(Sponsored by Karnataka State Council for Science and Technology)*

**Bachelor of Engineering  
in  
Electronics & Communication Engineering  
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## **ABSTRACT**

It is the era of machines today. Our daily activities are dependent on one or more machines. Each and every machine manufacturing process depends on the other machines. Thus, each machine rules the other and in turn it is ruled by another. In short, machines are interdependent. So, the whole world today is totally dependent on the machines which makes task easier, saves precious time and reduces the human resources.

The project undertaken is to design a pick and place robotic arm which has the capability to pick object from a specific point from the first conveyer belt and to place it safely at the other point on the second conveyer belt. A belt conveyer is programmed which allows the objects to be placed on it and carries it to the next location specified. A sensor system is developed to sense the object on the belt conveyer so that the robotic hand does not try to overlap the other object on the existing one. So the complete overview of the project is to develop a pick and place robotic arm with object sensing system with collision avoidance.

The methodology involves a microcontroller which co-ordinates all the activities, a robotic arm which is responsible for the pick and place operation, sensors to sense the place where object has to be placed, motors to drive the conveyers and the robotic arm, and a regulated power supply.

Thus, such systems are useful in almost all type of manufacturing industries, where the product has to undergo several stages of treatments or processes. It is also useful in the industries where the raw materials have to be picked from one stage, has to be sent to the next stage for further process. Such industries may be a cement factory, PCB manufacturing, automobile industry, milk diaries etc. To conclude, every manufacturing industry shall make use of this system for transporting the intermediate raw materials to the desired product.