**SYNOPSIS OF PROJECT WORK**

**(B. E. Elect. Engg. 2016-17)**

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| **Name of Students** | 1. **Ronak Soni** 2. **Samruddha Kiran Moon** 3. **Suryawanshi Niranjan M.** |
| **Title of the Project Work** | **Microcontroller controlled sensor based wireless robotic arm** |
| **Abstract** | **In last few decades robotics and gesture based controlling of equipment has improved a great deal previously analog remotes were used for controlling. Our project is based on controlling of robotic arm by using hand gestures. We are using two different sensors accelerometer and flex sensor to control robotic arm by the movement of fingers and hand positioning. The signals generated by the sensors are fed to the micro controller for processing. The servo motors of the robotic arm assembly are controlled by these signals from microcontroller. The robotic arm moves in real time according to the position of accelerometer and transfers force in proportional to flex sensors input for picking application.** |
| **Work done earlier (Literature survey)** | 1. **“Accelerometer Based Nonspeciﬁc-User Hand Gesture Recognition” (IEEE): This paper explains the use of three axis accelerometer to recognize hand position in real time** 2. **“Flex sensor based user hand gesture recognition” (ISSN2319-9725): This paper describes the use of flex sensors and its working as variable resistor** 3. **“Implementation of Flex sensor and Electronic Compass for Hand Gesture Based Wireless Automation of Material Handling Robot” (ISSN 2250-3153): This paper reports on the implementation of flex sensors for hand gesture identification** |
| **Source of project (Problem Definition)** | **To remove the traditional way of controlling by using switches we have used hand movements and gestures based on various sensors to control the robotic arm.** |
| **Objectives of the Project** | **In this project aim is to control the robotic arm assembly using wireless controller based on flex sensor and accelerometer for positioning, picking and placing applications.** |
| **Work to be carried out (Proposed work)** | **By using this prototype model we are going to demonstrate the various possibilities of gesture control applications in day to day life and specific works like positioning picking and placing objects.** |
| **Future scope** | **Real time models could be implemented in construction works, military applications.** |
| **Duration of the Project (Plan till Apr. 2017)** | |  |  |  | | --- | --- | --- | | **Sr. No.** | **Month** | **Plan** | | **1** | **June** | **Searching for project topics and guide allocation** | | **2** | **July** | **Project topic finalization and literature survey** | | **3** | **August** | **Equipment selection** | | **4** | **September** | **Equipment selection and purchasing** | | **5** | **October** | **Documentation** | | **6** | **November** | **Work on hold (SPPU exam)** | | **7** | **December** | **Project phase one** | | **8** | **January** | **Learning and implementation of microcontroller programming** | | **9** | **February** | **Equipment and Final assembly** | | **10** | **March** | **Test runs, Report and Oral Preparation** | | **11** | **April** | **Project completion and Project phase two** | |
| **Individual Role of the Student** | **Ronak Soni : Equipment purchase, programming**  **Samruddha Kiran Moon : Topic survey , programming**  **Suryawanshi Niranjan M. : Documentation and calculation** |
| **References** | 1. **“Accelerometer Based Nonspeciﬁc-User Hand Gesture Recognition”(IEEE SENSORS JOURNAL, MAY 2012)** 2. **“Flex sensor based user hand gesture recognition” (ISSN2319-9725)** 3. **“Implementation of Flex sensor and Electronic Compass for Hand Gesture Based Wireless Automation of Material Handling Robot” (ISSN 2250-3153)** 4. **“Novel Approaches for Robotic Control Using Flex Sensor” (ISSN : 2248-9622, Vol. 5, Issue 2, February 2015)** |

**Project Guide Project I/C HOD (Elect. Engg.)**

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