**Intel Intelligent System Lab**

**PROJECT SYNOPSIS**

**GloveBud: A Gesture Control System**

*(Team member’s detail)*

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| **Type of Project (Research/Product Prototype)** | **Date of commencement of project** | **Date of synopsis submission** | **Date of Project submission** |
| Product Prototype | 22.08.2016 | 23.08.2016 |  |

**Department Details**

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**MOTIVATION**

**Gesture control and the concept of the Internet of Things, when implemented as a single entity, can undoubtedly revolutionize the way humans interface with various devices. From smart devices at homes to industrial robots, gestures can be used to control a number of devices that are connected together in a network. GloveBud is a glove worn on the hand of the user to gesture devices interfaced with it.**

**Gesture control (using the GloveBud) not only allows us to control our surroundings remotely, but also aids the physically challenged to access their surroundings more comfortably through reduced motion. Amongst other methods on automation and control, gesture control is extremely secure giving a single person the soul control. Gesture control also gives workers in industries an easier work environment and a reduced pre-requisite skill-set, thereby decreasing unemployment. Further improvements of the project include enhancement of human-cyborg experiences and interfacing with humanoids to mimic human activity.**

**BLOCK DIAGRAM & DESCRIPTION**

To develop a prototype of the product that includes the following Technologies:

* Microcontroller ESP2866
* Intel Galileo for interfaced devic 2e(s) control.
* Wireless module to Transmit/Receive signals(WiFi)
* Accelerometers to calculate gesture inputs.

The Block diagram of the system incorporating all technologies is given below:

Microcontroller

M1

(ESP2866)

Microcontroller

M2

(Intel Galileo 2)

Control Switch

Wireless

Module

W1

Wireless

Module

W2

DEVICE 2

Accelerometers and other supportive components

DEVICE n

DEVICE 1

**Interfaced Entities**

**GloveBud**

**Fig 1.2: Diagram showing interfacing of GloveBud(L) with other devices (R)**

The GloveBud is mounted with accelerometers, Microcontroller M1, control switch. The readings of accelerometers are used to interpret the input gesture and send the appropriate signal to the device interfacing Microcontroller M2. This signal is used to act on the connected devices. The execution status is sent back to M1 as a signal to portray success or failure of the gesture input. Signals in the system are wirelessly transmitted from M1 to M2 and back using two wireless modules- W1 and W2 (WiFi).

**DESIGN APPROACH AND TASK PLANNING**

| Major Task | Description | Timeline |
| --- | --- | --- |
| Project Planning and feasibility Analysis   * Identifying Hardware and Software components * Synopsis Submission |  | Within a week of training |
| **Hardware/Software Design Stage- I** | Write a test program to capture a gesture from the glove (with Microcontroller M1) and send it to a single device(through Microcontroller M2) for verification.  Configure Wireless module W1 and W2 | After completion of first month of training |
| **Hardware/Software Design Stage – II** | Interfacing and programming Wireless modules W1 and W2 to both Microcontrollers- M1 and M2.  Programming the control switch.  Attach more devices and test multiple device control through gestures.  Programming various gestures for devices for activation and deactivation. | After completion of second month of training |
| **Prototyping, Testing and Integration** | Main aim to test the functionality of the interfaced entities with respect to the gestures by GloveBud. | After completion of third month of training |
| **Submission of project video** |  | After four months |