



UNIVERSITY OF JAFFNA

FACULTY OF ENGINEERING

Department of Electrical & Electronic Engineering

EC4050: Electronic Circuits and Devices

Mini Project

Year: 2024

Batch: E22

1. OBJECTIVES:

- Applying electrical and electronics theory to a practical problem to be solved.
- Familiarize with basic electronic components and analyzing it to build a circuit.
- To gain knowledge and practicing in PCB (Printed Circuit Board) fabrication process.

2. DESIGN TASK

- **Description:** *Design a key tag detector circuit that should produce a tone when someone makes two consecutive hand claps within three seconds duration to help identifying the key tag.*
- **Requirements & Constraints:**
 1. The circuit should be battery powered.
 2. The tone produced by the key tag should reset after some certain time.
 3. One such restriction is not being able to use Logic gate ICs but you can use 555-Timer ICs.
 4. Advised to use optimum usage of electrical components avoiding extra components.

3. LOGBOOK MAINTENANCE

- Have a note book as logbook for track your progress from scratch to complete the task.
- Record all your readings/findings from any materials in the logbook.

4. DESIGN PROCESS

- Phase-1: Verify the design via Simulation of the circuit.
- Phase-2: Implement the circuit in Breadboard and testing.
- Phase-3: Perform the PCB (Printed Circuit Board) design in Fabrication Lab.

5. EVALUATION

- This task will be evaluated phase by phase. The phase-01 will be evaluated based on your submission, phase-02 will be evaluated by in-person at allocated lab and phase-03 will be evaluated as end-evaluation.
- Phase-02 is allowed to do upon your phase-01 submission. Phase-03 is allowed to do for those who have passed/completed phase-02.
- Evaluation date and venue will be informed later for phase-02 and phase-03.

6. APPARATUS AND LAB USAGE

- List out all components by finalizing circuit diagram, once it done proceed to Electronics lab to get those components and in case of unavailability of the required components, kindly get it from outside.
- PCB fabrication can be done in the Fabrication lab. Please ensure that you sign the check-in and check-out and write down the work carried out in the record book. This record also be considered as progress of the task.
- It's advisable to do any lab works during the working hours and if you required to use lab after work hour, kindly drop a request through lecturer-in charge of this subject and approval of the request is solely based on the availability of the respective staffs during that time.

7. GROUPING AND TEAM WORK

- This is a group project and maximum of two members can be in a group.
- This is both member's responsibility that contribution from both parties equally weighted as this is a team work.