

HACETTEPE UNIVERSITY

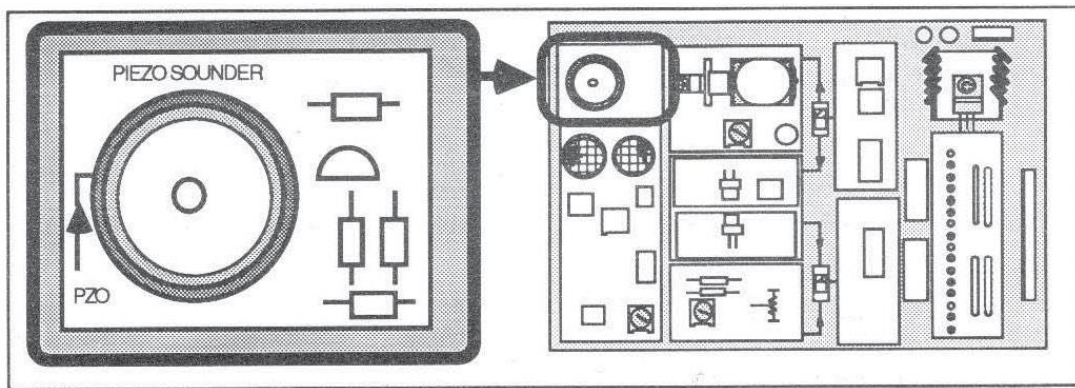
DEPARTMENT OF COMPUTER ENGINEERING

BBM436 MICROPROCESSORS LAB. ASSIGNMENT 7

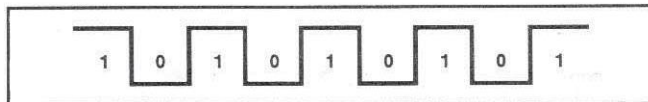
Subject : Implementation of an Organ Using Application Modules
Programming Language :
Advisors : Assoc. Prof. Dr. Harun ARTUNER, R. A. Ali Osman SERHATOĞLU,
R. A. Burcu YALÇINER

1. BACKGROUND INFORMATION

1.1 Piezo Sounder [1]



The piezo sounder converts a TTL level waveform on Port 1, bit 5 (P15) into an audio signal of the same frequency. Changing the logic level on P15 with respect to time will generate a TTL waveform thus:



2. EXPERIMENT

In this experiment, you are supposed to write a program which is implementation of an Organ using the piezo-sounder and the keypad. Keys representing only the hexadecimal values from 1 to F should be used. The following relationship between the keys and notes should be considered:

1-> 146Hz	2->164Hz	3->174Hz	4->196 Hz
5-> 220Hz	6->246Hz	7->267Hz	8->293 Hz
9-> 326Hz	A->349Hz	B->392Hz	C->440Hz
D->493Hz	E->523Hz	F->597Hz	

2.1 Your Report

- Do not forget to write aim of the experiment to the report draft given by the teaching assistants.
- Clearly write everything which you are expected to the report draft.
- Submit your report draft within laboratory time.

LAST REMARKS:

- Do all the necessary preparations for the experiment before coming to the lab.
- Procure (provide) a complete Intel8256 MUART's hardware Reference manual.
- All experiment must be done both of group members.
- Regardless of the length, use **UNDERSTANDABLE** names to your variables and functions.
- Write **READABLE SOURCE CODE** block
- The assignment must be original, **INDIVIDUAL** work. Duplicate or very similar assignments are both going to be punished. General discussion of the problem is allowed, but **DO NOT SHARE** answers, algorithms or source codes.
- You can ask your questions through course's communication channel and you are supposed to be aware of everything discussed in the channel:
<https://piazza.com/hacettepe.edu.tr/fall2018/bbm436/home>

REFERENCES

1. DIGIAC 2000 Microprocessor Training System Curriculum Manual page 155