

ARIF SALIH OZMEN

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In June 2013, I started my undergraduate program at Hacettepe University, Department of Electrical and Electronics Engineering. I bypassed preparatory class and earned my bachelor degree in June 2017. I make constant effort to improve myself in my career and socially.

I have the ability to quickly understand, assimilate and implement programming languages. I am interested in the fields of Computer Programming, Embedded Systems, Operating Systems and Signal Processing. During my undergraduate studies, I took courses related to these topics which I am motivated to work on. For my graduation project, I worked on both hardware and software developments in the study titled "Distant Temperature Measurement for Detecting Sleep Apnea Episodes" conducted by Prof. Dr. Atila YILMAZ and Res. Asist. Tuna ORHANLI. After graduation, I have been accepted for and started my MS program at Hacettepe University, Department of Electrical and Electronics Engineering. While pursuing my MS degree, I have had 3 months of work experience in the field of System Engineering. During my work experience, I have found an opportunity to work under the System Engineering department and experienced all steps of project cycle from System Engineering perspective. Also, I have had detailed knowledge about System testing and integration processes.

I build good relationships with people and am in harmony with social groups. I am sure that I can be a member of team works and also can manage and follow project processes and groups. I am confident that I will be able to carry out the necessary research on my field of study and assigned tasks in a perfect way.

EXPERIENCES

- [09.2017-01.2018] USTUNOVA Engineering, R & D
 - *System Test Engineer, Electronic Warfare Systems*
- [07.2016-09.2016] BITES Defense & Aerospace Technologies
 - *Intern Engineer*
- [08.2012-08.2013] Isiklar Military Air Force High School
 - *Operation Officer in the School Executive Board*

LANGUAGES

- Turkish
 - *Mother Language*
- English
 - **W:** Intermediate | **R:** Upper | **L:** Upper
 - **Exam Grade:** YOKDIL – 86.250 | 24.03.2017

PROJECTS

* details are given in Attachment-1.

- [2014] [12V-5V Bridge Full Wave Rectifier Circuit](#)
- [2015] [FM Demodulator – Band Pass Filters](#)
- [2016] [Communication System Design and MATLAB Simulation](#)
- [2016] [Language Education Device \(LANGBOX\) Design](#)
- [2016] [Home Security System with MSP430-EXP430G2](#)
- [2017] [Digital Piano with ALTERA DE-1 SOC FPGA](#)
- [2017] [Detection of Sleep Apnea Episodes \(Graduation Project\)](#)

SKILLS

- FPGA
- MSP430, Arduino
- Raspberry Pi
- MATLAB
- C++
- VHDL
- CCS
- HTML
- CSS
- Emu8086
- Proteus
- Microsoft Word, Excel, PowerPoint

EDUCATION

- [09.2017- -----] Hacettepe University, Ankara, Turkey
 - *MSc, Electrical and Electronics Engineering*
- [09.2013-06.2017] Hacettepe University, Ankara, Turkey
 - *BSc, Electrical and Electronics Engineering*
- [09.2012-06.2013] Bogazici University, Istanbul, Turkey
 - *BSc, Physics*
- [09.2008-07.2012] Isiklar Military Air Force H.S, Bursa, Turkey

LICENCES

- [2012] Driver License
 - *B*

AREAS OF INTEREST

- Computer Programming
- Operating Systems
- Embedded Systems
- Signal Processing
- Biomedical Systems
- Aviation & Aerospace
- Electronic Warfare Systems

CERTIFICATIONS

- [02.2018] Udemy | [Learn and Understand C++](#)
- [01.2018] SOLOLEARN | [C++ Tutorial Course](#)
- [01.2018] SOLOLEARN | [C# Tutorial Course](#)
- [01.2018] SOLOLEARN | [HTML Fundamentals Course](#)
- [01.2018] SOLOLEARN | [CSS Fundamentals Course](#)
- [01.2018] SOLOLEARN | [JAVA Tutorial Course](#)
- [11.2011] Turkish Aeronautical Association | *Glider & Flight Training*
- [12.2006] Traffic Inspection Department | *School Gateway Officer*

HONORS & AWARDS

- [06.2010/2011] Isiklar Military Air Force High School
 - *Military Schools Table Tennis Tournament, Teams 1st*
- [07. 2009] Isiklar Military Air Force High School 2nd Squadron
 - *High Performance and Devotion*
 - *Sense of Responsibility and Sense of Duty*

REFERENCES

- **Prof. Atila YILMAZ**
Hacettepe University Electrical and Electronics Engineering
 - *Circuits and Systems Division Chair*
 - *Faculty Member*
Hacettepe University Computer Center Director
ayilmaz@ee.hacettepe.edu.tr
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HOBBIES

- Table Tennis (*Semi-Professional*)
- Swimming
- Football
- Aviation

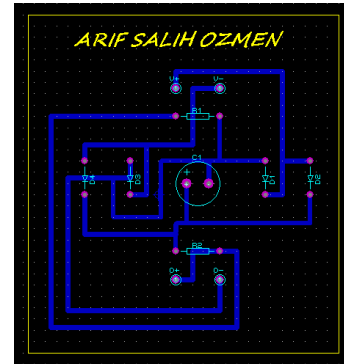
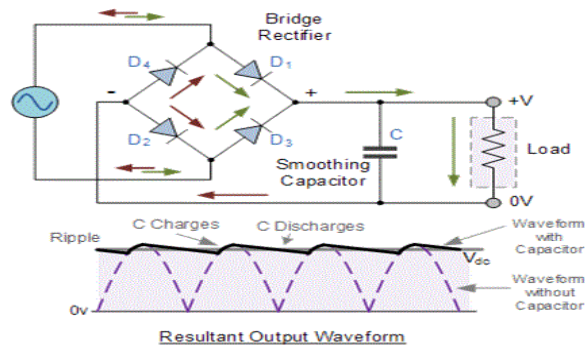
- **Res. Asist. Tuna ORHANLI**
Hacettepe University Electrical and Electronics Engineering
 - *Research Assistant*
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+90 312 297 70 00 / 111

1. 12V-5V BRIDGE FULL WAVE RECTIFIER CIRCUIT [2014]

This Project done within the scope of Electronic Laboratory 1 Course. The purpose of this project is learning to design aim specific circuitry both theoretically and practically. Also, making Printed Circuitry Board (PCB) design of the designed circuitry.

During the project, 12 V AC to 5 V DC converter circuitry was designed, Simulation and PCB design of circuitry was done by using Proteus and required components were soldered on to PCB.

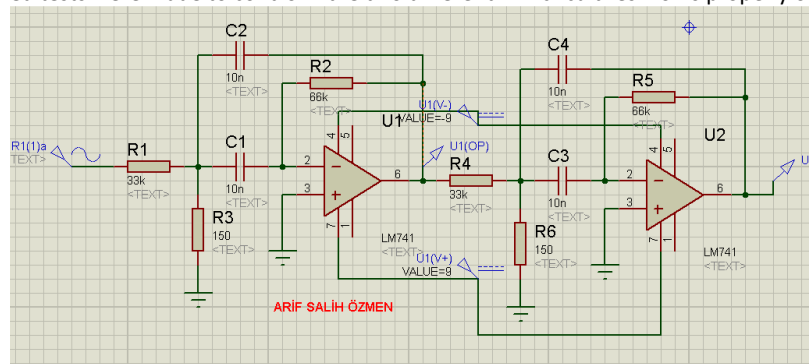
At the end, required tests were made to control if the Rectifier circuitry works properly or not.

**2. FM DEMODULATOR – BAND PASS FILTER [2015]**

This Project done within the scope of Electronic Laboratory 2 Course. The purpose of this project is learning to design aim specific circuitry both theoretically and practically. Also, making Printed Circuitry Board (PCB) design of the designed circuitry.

During the project, I had designed a two different FM Demodulator – Band Bass Filter Circuitries which are the part of Analog Remote Controlled Car Project. The purpose of these BPF circuitries is to demodulate incoming signal to conclude which frequency are applied from the command. According to demodulated incoming signal frequency, the car is turning to the right or to the left. BPF circuitries were designed, Simulations and PCB designs of circuitries were done by using Proteus and required components were soldered on to PCB.

At the end, required tests were made to control if the two different BPF circuitries works properly or not.

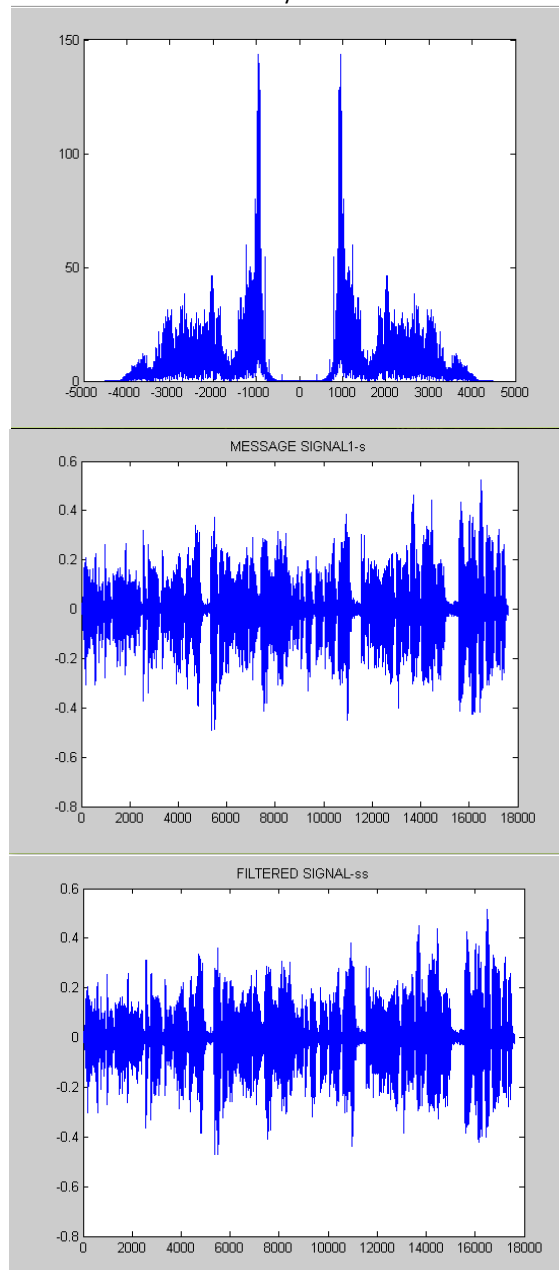


3. COMMUNICATION SYSTEM DESIGN MATLAB SIMULATION [2016]

This Project done within the scope of Communication Theory Laboratory 1 Course. The purpose of this project is learning to design and simulate an analog communication system operating on noisy channel and observing the effect of channel noise on different modulation types.

During the project MATLAB was used for design and simulation of the system. An analog modulator is designed to produce different types of modulated signal such as Amplitude, Frequency, Double Side Band, Double Side Band Suppressed Carrier and Single Side Band modulation. After Randomly additive white Gaussian noise generated and applied to the modulated signal. At the same time, Analog demodulator such as Coherent, Envelope detector and Phase Locked Loop is designed to demodulate noisy signal to reproduce message signal.

At the end, all modulation types are applied to the sample sound signal. After message signal is observed by applying proper demodulation type and effect of channel noise is analyzed.



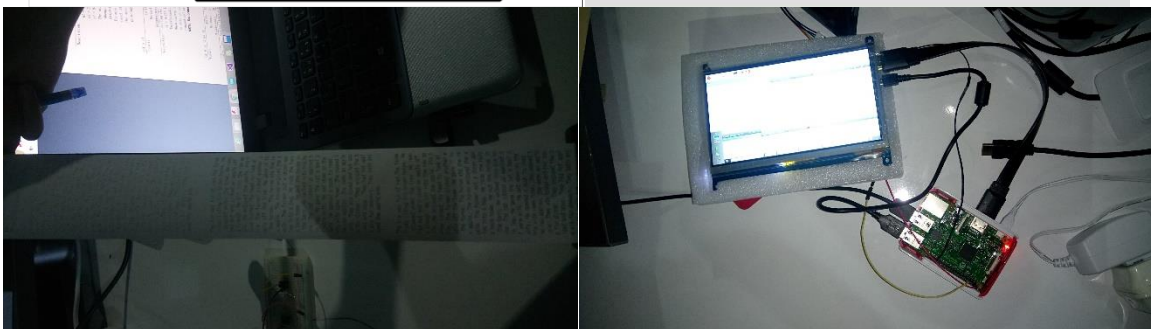
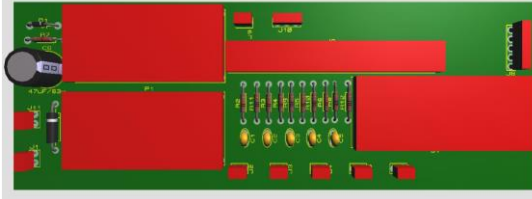
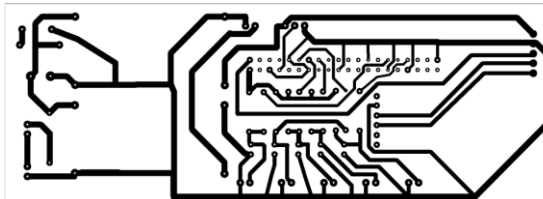
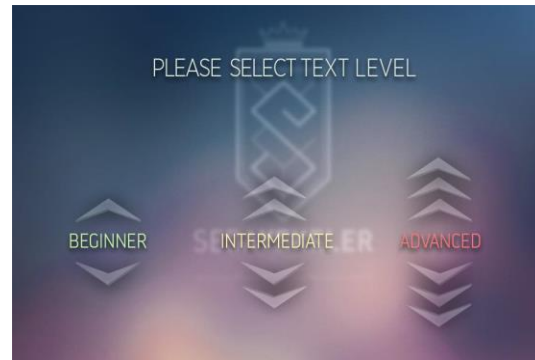
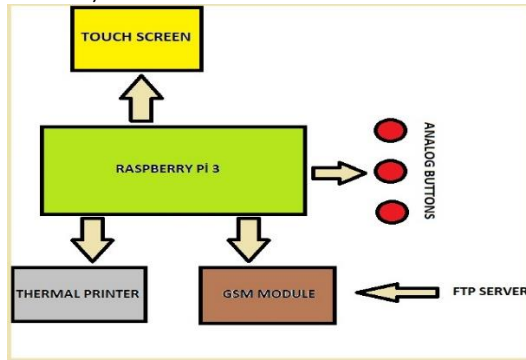
4. LANGUAGE EDUCATION DEVICE (LANGBOX) DESIGN [2016]

This Project was carried out during the internship period. The purpose of this project was to design a Language Education Device which was demanded by a Language School.

I have played a role in all stages of this project from requirement analysis and determination phase to the prototype production phase. The main purpose of this device was to give user a translated English – Turkish text in 3 different levels. This different level texts can be chosen via analog buttons and also touch screen. Selected level texts given user via thermal printer. Translated texts can be updated remotely. Also, on the standby mode desired advertisement can be demonstrated via touch screen.

We have used and learned the following hardware and software components to implement the device. Also, we have used Proteus to design circuitry of the System and make PCB design.

- Raspberry Pi 3 and GPIOs
- Touch Screen
- Thermal Printer (UART)
- SIM 900 GSM/GPS Module (UART)
- FT 232 USB to UART Board
- LM 2596 DC-DC Converter (x2)
- Some kind of circuitry elements (Resistors, Capacitors, Analog Buttons, Diodes, Jumpers etc.)
- Linux OS (Works on Raspberry)
- Linux Commands
- UART Communication
- Qt cross-platform (C++)
- QML
- AT Commands (For GSM/GPS Module)

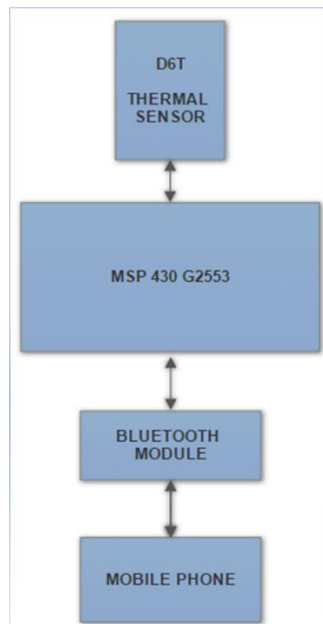


5. HOME SECURITY SYSTEM WITH MSP430-EXP430G2 [2016]

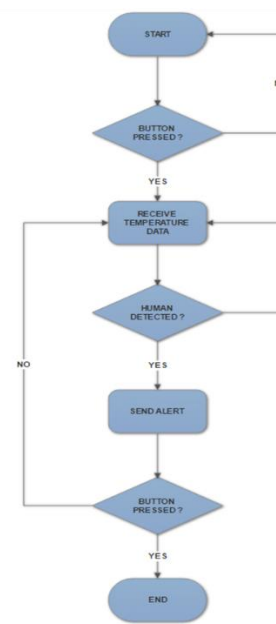
This Project done within the scope of Embedded System Design Course. The purpose of this project is to design an Embedded System to detect burglary via Thermal Sensor. If any burglary activity detected, an alarm message sent to the mobile phone via Bluetooth Module.

During the project, MSP430-EXP430G2 microcontroller, OMRON D6T-44L-06 Thermal Sensor and HC-05 Bluetooth Module was used. Communication of Thermal Sensor and Bluetooth Module with Microcontroller done with I^2C and $UART$ Communication protocol respectively.

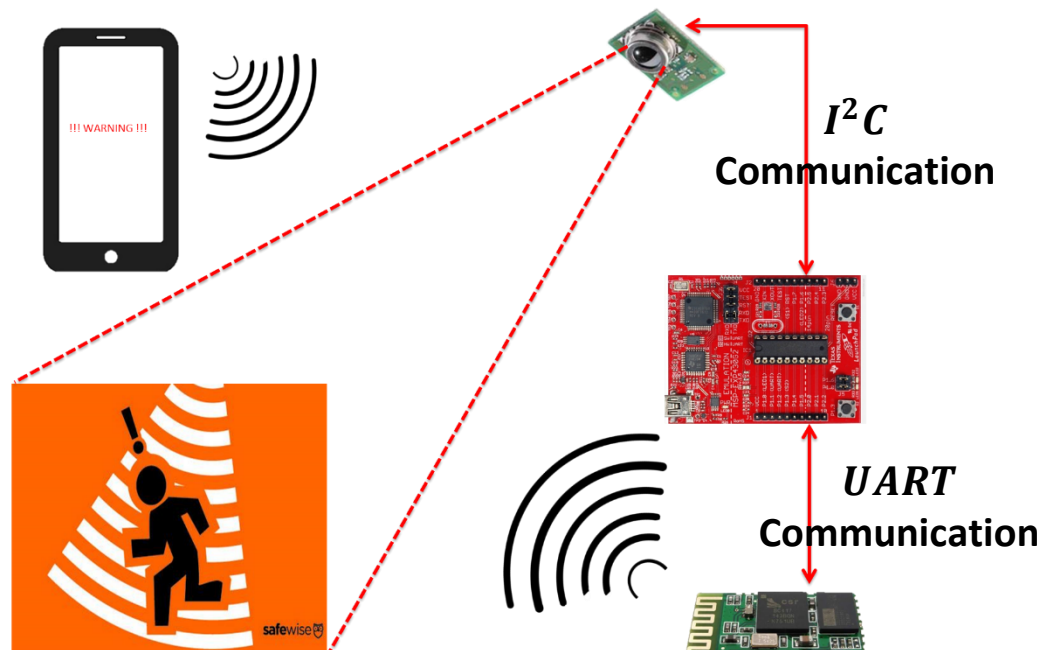
The temperature changes in the environment was continuously evaluated and it was determined that if there was any person in the field of view of thermal sensor or not. When any person was detected, a "Warning!!!" message sent to the mobile phone via Bluetooth.



BLOCK DIAGRAM



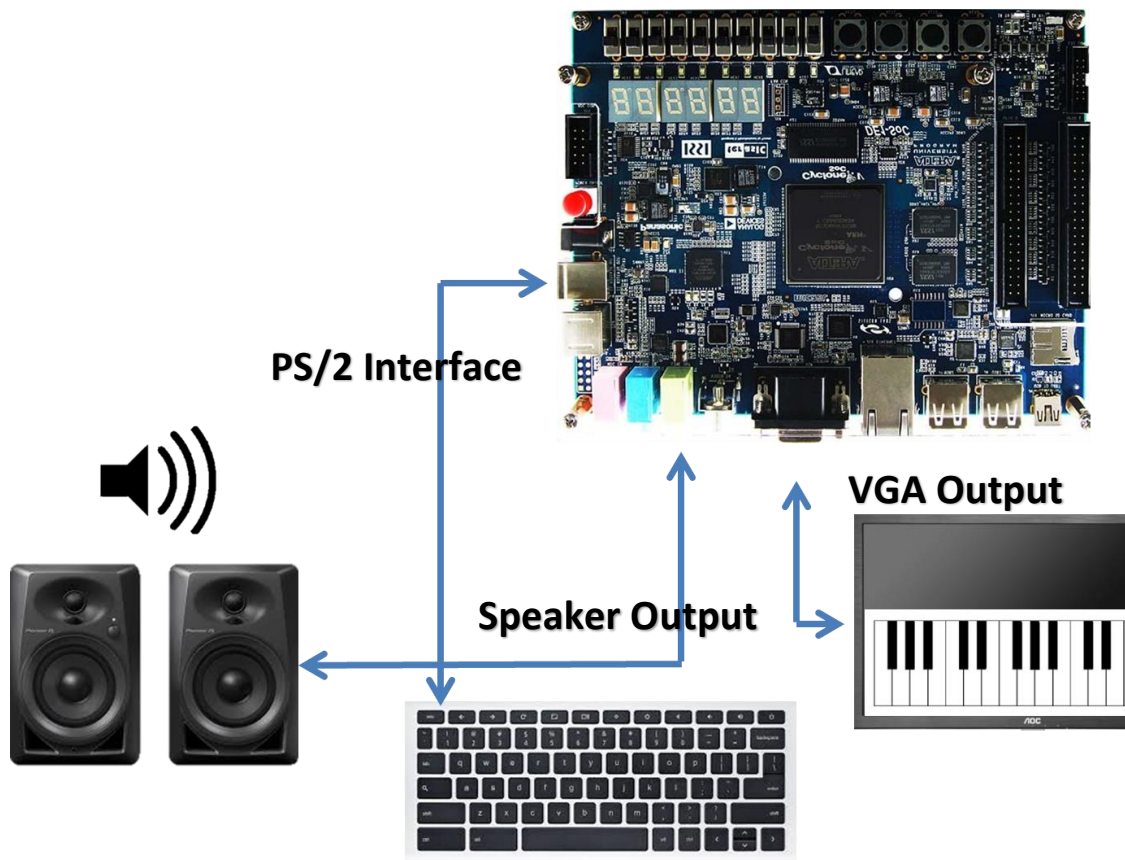
FLOW CHART



6. DIGITAL PIANO WITH ALTERA DE-1 SOC FPGA [2017]

This Project done within the scope of Advanced Digital Design Course. The purpose of this project is to design a digital system that simulate a Piano with an FPGA, PS/2 Keyboard, VGA Screen and Speaker.

During the project, ALTERA DE-1 SOC FPGA, HP PS/2 Keyboard, Philips VGA Screen and Logitech Speaker was used. Appropriate frequencies to generate sound signals were generated on FPGA. Basic Music notes were assigned to some keyboard buttons. And Piano buttons are simulated on VGA screen via VGA output of FPGA. When any note button pressed on the Keyboard, generated sound signal with respect to note frequency outputted with Speaker output of FPGA. Also, pressed note are simulated on the VGA screen simultaneously.



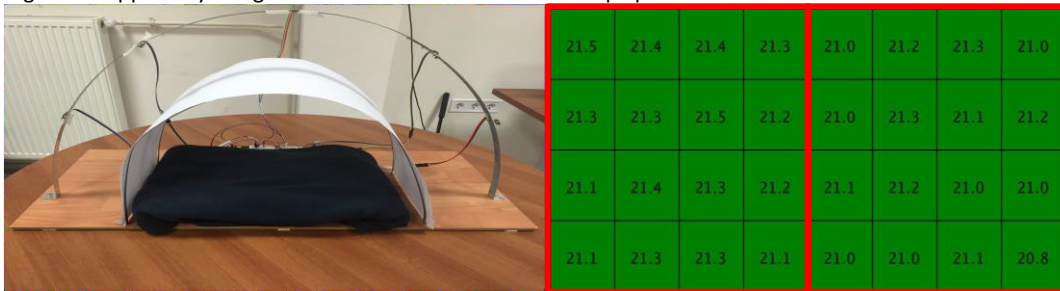
7. DETECTION OF SLEEP APNEA EPISODES [2017]

This is the Graduation Project my University Career. Sleep apnea is a common breathing disorder which is diagnosed by detecting short term pauses lasting minimum 10 seconds in breathing or decreased breath volume while sleeping. Sleep apnea is a leading cause of excessive daytime sleepiness and lack of concentration along with occasionally triggered cardiac events. The standard method to diagnose sleep apnea problem is to use polysomnography (PSG) device in sleep rooms of hospitals. This clinical routine is expensive and difficult since there are long queues to be waited for proper examination and requires attendance by an expert along with the patient to operate the system. It is also reported that the patients find this routine useless. Most of the time due to massive cable connections that cause uncomfortable conditions for deep sleep.

The main purpose of this project is to detect the temperature variations observed from the mouth region of the head from the certain distance instead of using standard electrodes and other cables to record physiological signals which are useful for apnea diagnosis. The device that developed is able to monitor and process breathing activities indirectly around the mouth by using non-contact temperature measurement sensors which are directed to mouth. Then, processing the signals obtained by these sensors and detecting sleep apnea episodes.

For this purpose, we designed a prototype system at the end of the project. This system consist of 5 Thermal Sensor and a Microcontroller. While sleeping, Thermal sensors were located around the human face by overlapping their field of views and creating a sleeping circle (gantry). By the way, even if the person changes position while sleeping, the system can continue to track sleeping activity.

OMRON D6T-44L-06 Thermal sensor was used to record breathing temperature signals. Communication of Thermal sensor with Arduino Leonardo microcontroller done by using I^2C Communication protocol. Received temperature signals are recorded and visualized via Java simultaneously on PC. After, Recorded signals were evaluated and developed Sleep Apnea detection algorithm applied by using MATLAB to conclude whether sleep apnea event occurred or not.



III. TEST AND RESULTS

