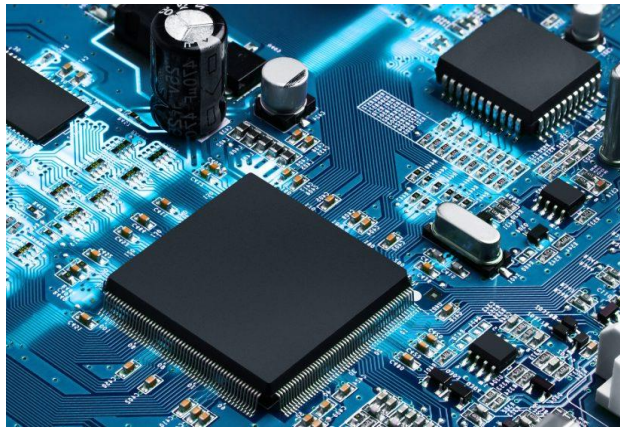# EMBEDDED SYSTEM

007/02/2021

Microcontroller research

Arduino sensors study

My idea for this project was to create a microcontroller which would sensor the temperature and the sound of the ambient. The main goal is to be able to determine when my son cries while sleeping as well as testing the bedroom temperature every few minutes.

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Project Report

Project Name: Baby cry sensor

07/02/2021 started researching and studying about embedded systems

07/04/2021 Started testing some code with the Arduino IDE

07/05/2021 I was able to test some different sensors, interact with LEDs etc

07/08/2021 Started coursera intro course "Embedded Software and Hardware Architecture

Status Code Legend

- 🟢 Done
- 🟡 In progress
- 🟠 Not started
- 🔴 Problem

Phase I

The phase I of the project is the first part of the project where I will be able to determine with a threshold whenever there is a higher sound volume or not. For now, it will turn on a LED every time the sensor reaches the threshold value. Also, the microcontroller will be testing the temperature and in case it drops or go higher then my pre-determine values, the other LED will turn on

Phase II

The phase II is where I want to be able to connect it to the internet to send phone notification whenever the sensor triggers the light. In other words, whenever my son cries in the bedroom

PLAN

First steps	
	🟢 Get material
	🟢 Learn Arduino syntax functions and libraries
	🟢 How to connect Arduino to computer
	🟢 Understand good practice code inside of the field

Material used	● ELEGOO uno R3 starter kit ● DAOKI AVR sound sensor ● DHT11 temperature sensor ● ESP12E Wifi
Testing	● Make a simple program to interact with LEDs ● Use loops, if statements and functions interacting with board ● Start to test different sensors such as temperature, sound, infrared etc
Learning outcomes	● How to use, add libraries ● How the sensor reads sound using voltage oscillation ● I had to sample the sound signal to create an understandable signal of sound to work with (just as in music recording)
Finishing report Future work	● Design a case in CAD and 3D print it to finish the project ● Continuous work on embedded system engineering and understand what the field requirement and good practice ● Working to implement PHASE II to receive txt messages and notification thru internet ● Completed coursera "Embedded Software and Hardware Architecture"

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Files and details

- Code of testing sound sensor

sound_sensor.ino

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- Picture of sound and temperature sensor working

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