UTSA Klesse College of Engineering and Integrated Design

ECE ELECTRICAL & COMPUTER ENGINEERING

Food Temperature Monitoring System

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Hi-Five

Abstract

The main objective of the Food Temperature Monitoring System is to autonomously measure the temperature of food in restaurants for safety regulations. This project should automate the temperature recording process by using BlueTooth to send the data from a food probe automatically to a database. Allowing the client to be more time efficient and save money in the long run.

Need for Product

Temperature taking in restaurants is a common inconvenience and takes time. Most food temperature monitoring systems available on the market today do not have the dual use of a continuous temperature reading as well as a probe for measuring meat temperatures. Additionally, the systems already in the market are expensive and require a considerable amount of set-up.

Design Concept

In our design, the temperature sensor data will go into a microcontroller that will communicate with an application via Bluetooth. The application will allow the user to categorize the food type and store data in a server. The server will be accessed from the client's computer where each measurement has a name, temperature, and time entry.
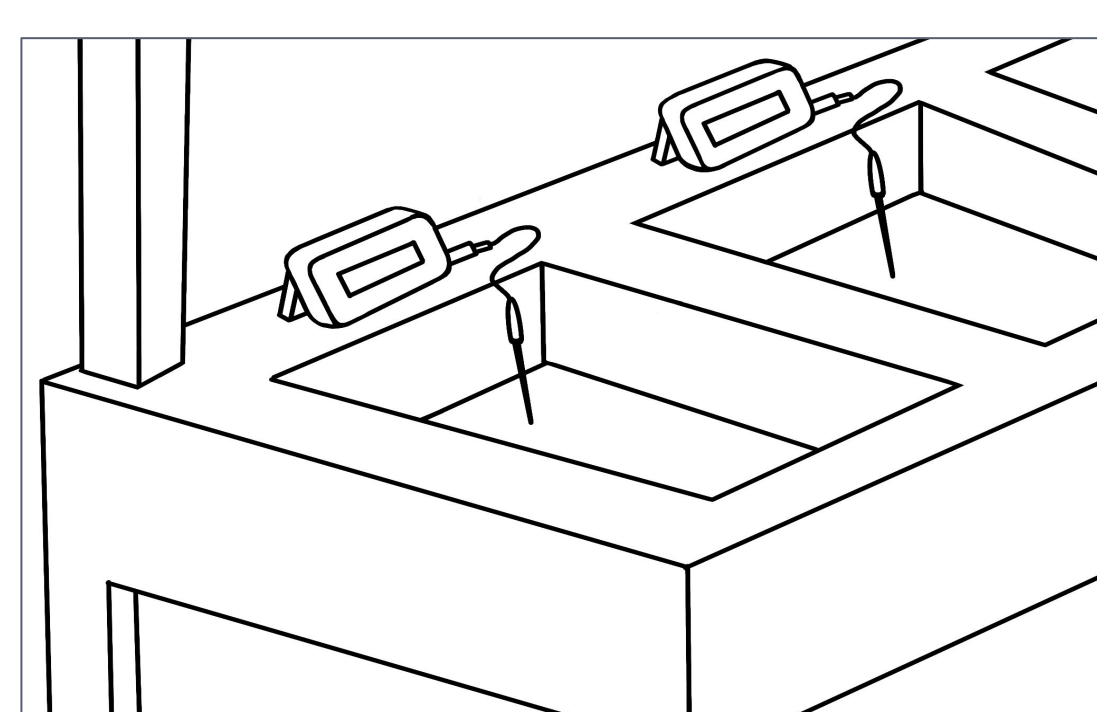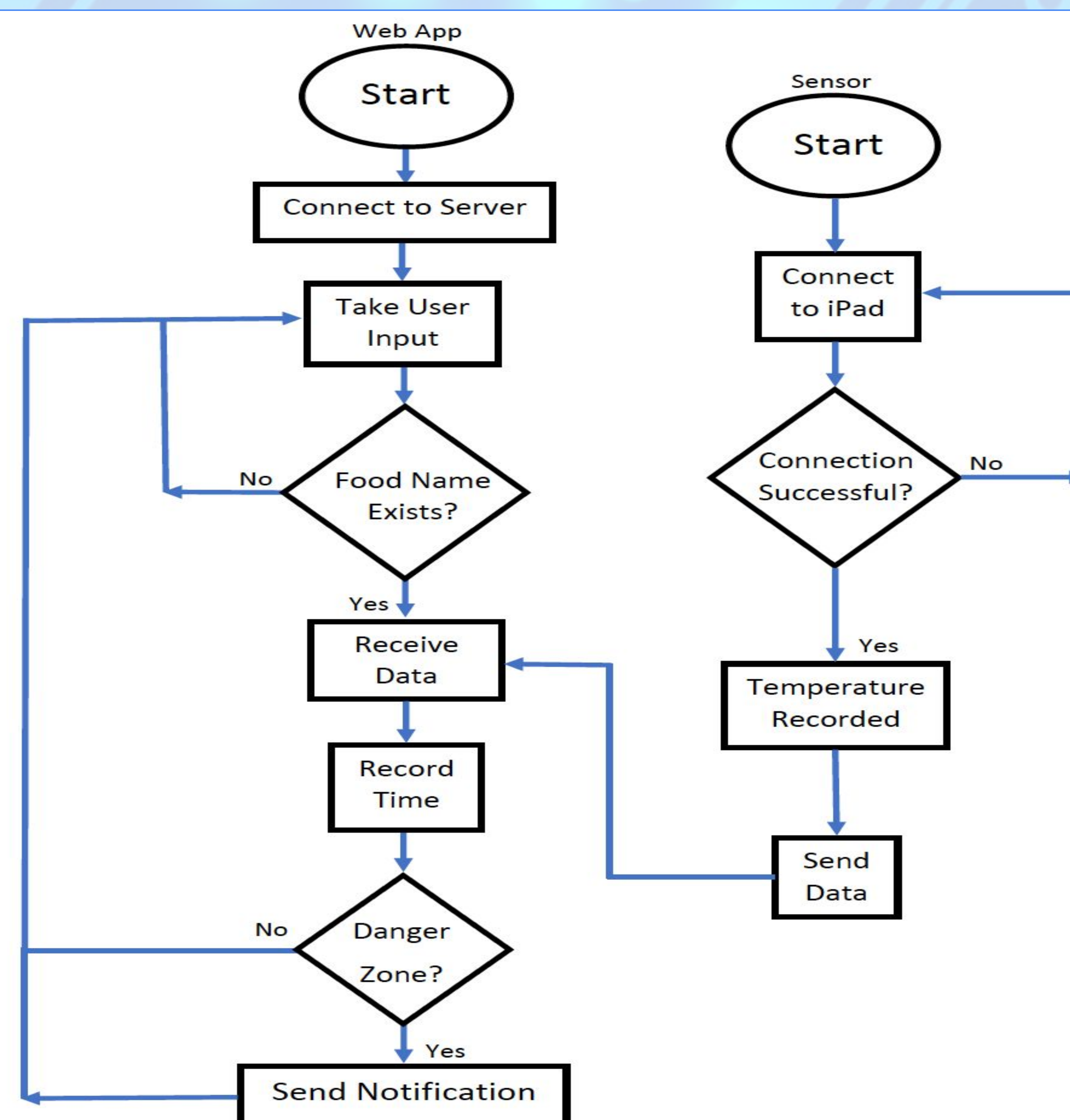

Initial design idea drawing

Functional Block Diagram
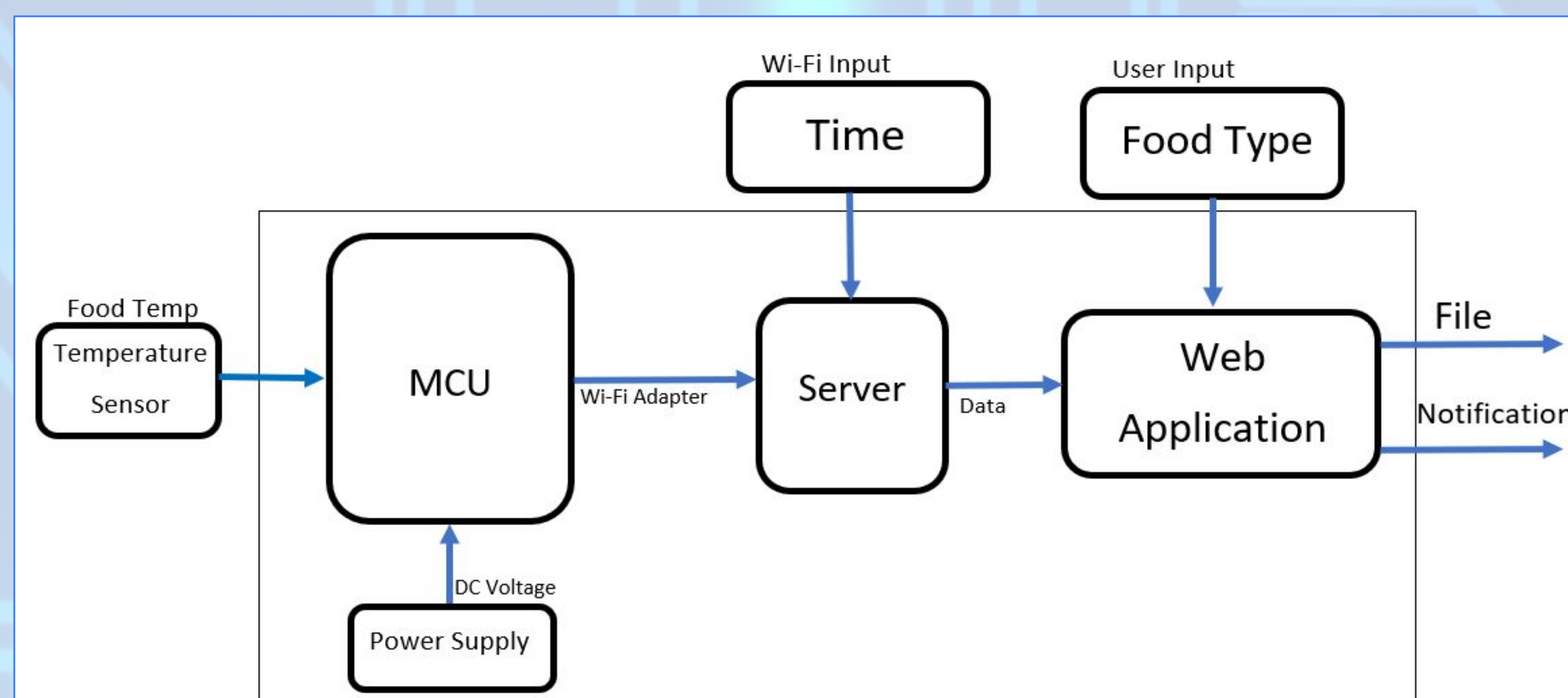
Software Flowchart

Components

-Raspberry Pi Pico
-Hex-Handle Standard Penetration Probe, 5-inch (K-160)
-Raspberry Pi 3 Model B
-ESP32 Bluetooth module

Future Work

First, research into configuration with our database/server and website application. Then design and 3D print the housing case for the device. Next is configuration for the device and establish a connection to the database/server. Next, setting up the server/database to configure to device and to web application. Lastly, develop the web application and configure to the database/server.

Glossary

Server- a computer which manages access to a centralized resource or service in a network.
Microcontroller- a small computer on a single integrated circuit chip. Contains one or more CPUs along with memory and programmable input/output peripherals.

Acknowledgements