EE 499: Senior Design Project

Team: 01 **Title of project** : High-Speed Real Time Serial Data Logger Onto Storage Device **Advisor & Customer**: Dr Amjad Hajjar

## Team Members

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Project Description

High-speed Real-time Serial Data Logger onto a Storage Device . input protocols include RS422, baud rates reach up to 614,400 bps, the device logging time needed is up to 1.5 hours . the device have a start/stop button to start and stop data logging ,multiple data loggings are stored in different text files named serially in SD card . an indicator is needed when the inserted sd card is full. powering up the unit can by supplied by commercial dc adopters with a standard dc connector. And the device PCB layout must be locally designed and sent for manufacturing.
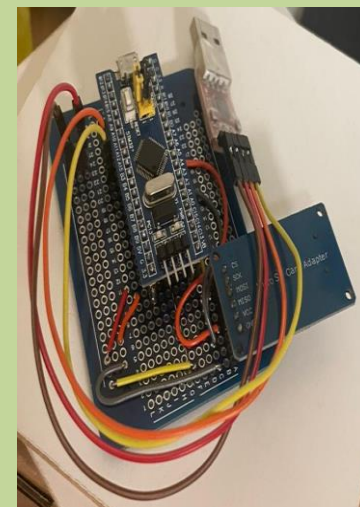
Project Photos
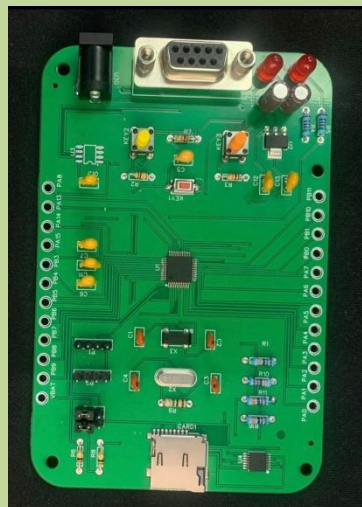
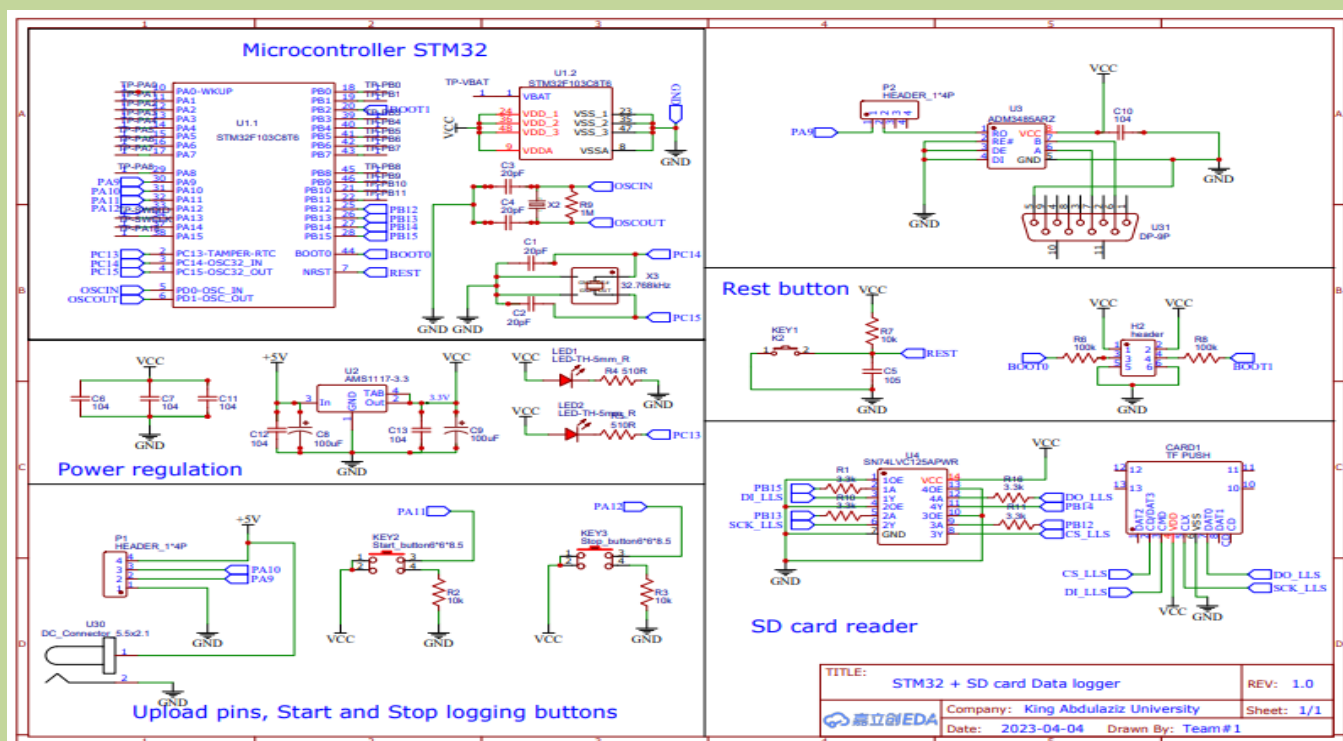1- PCB manufactured with its case
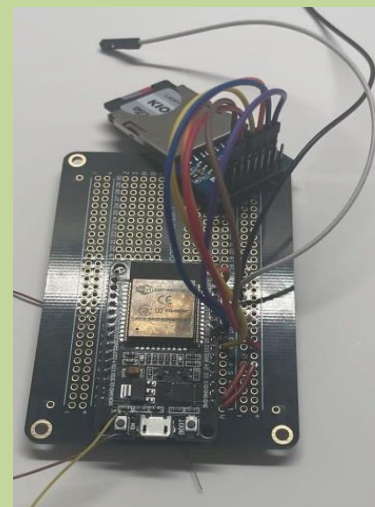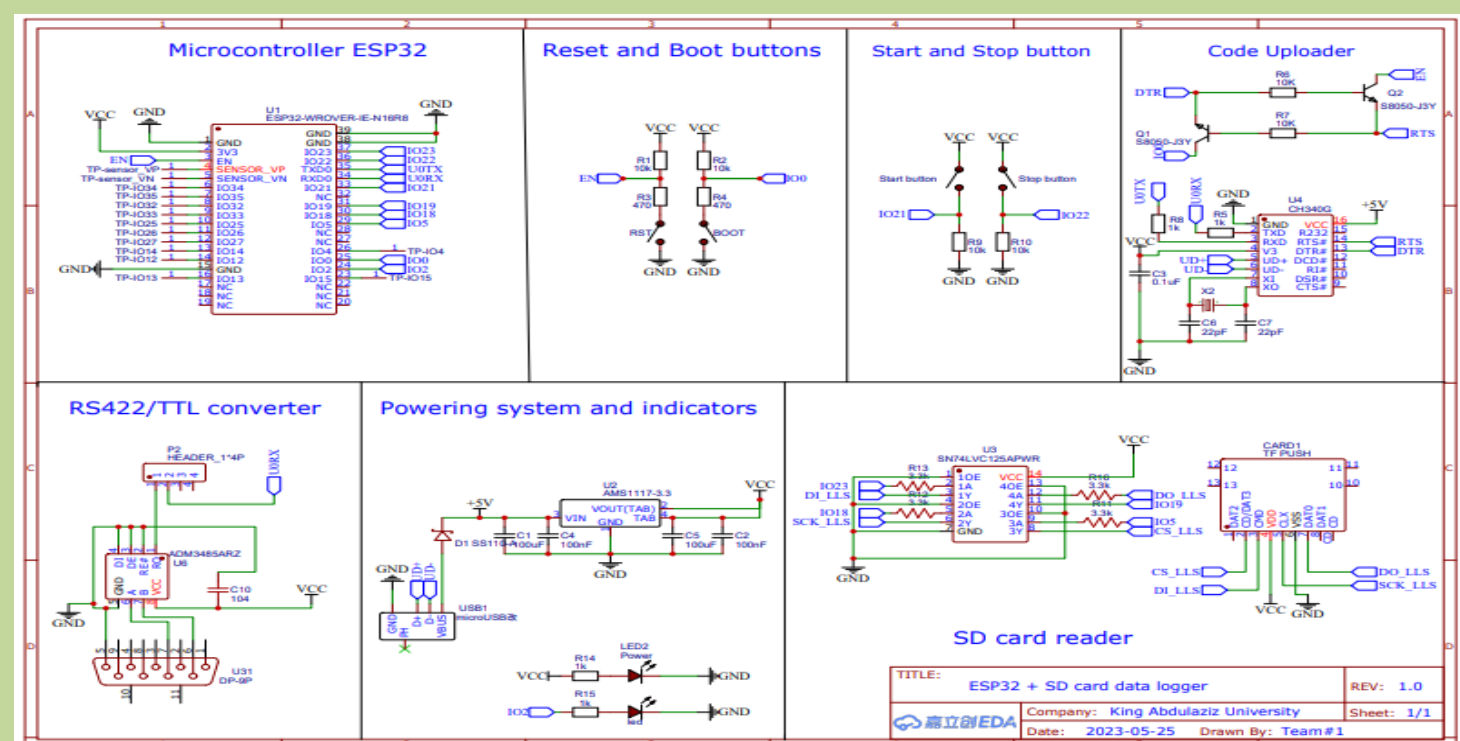
2- ESP32 on prototype PCB with its case

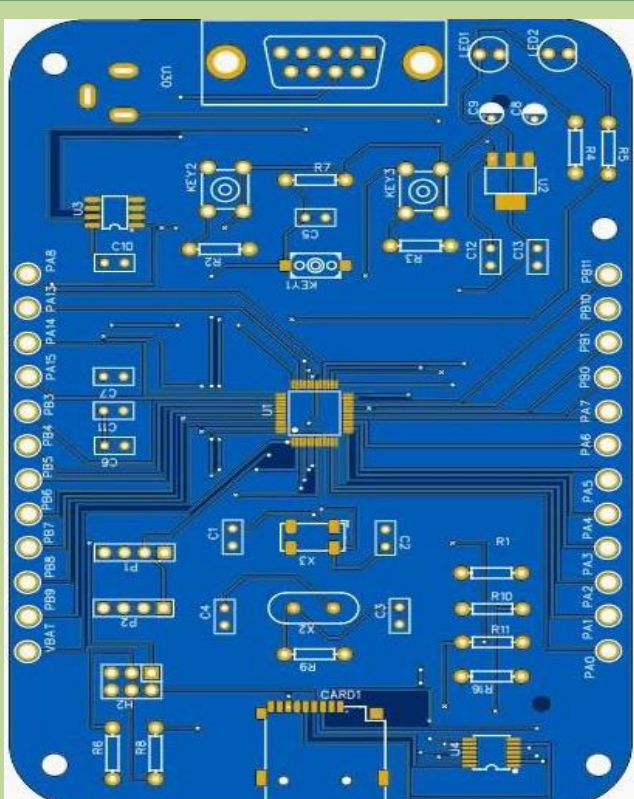3- STM32 blue pill on prototype PCB with its case

Circuit Schematic

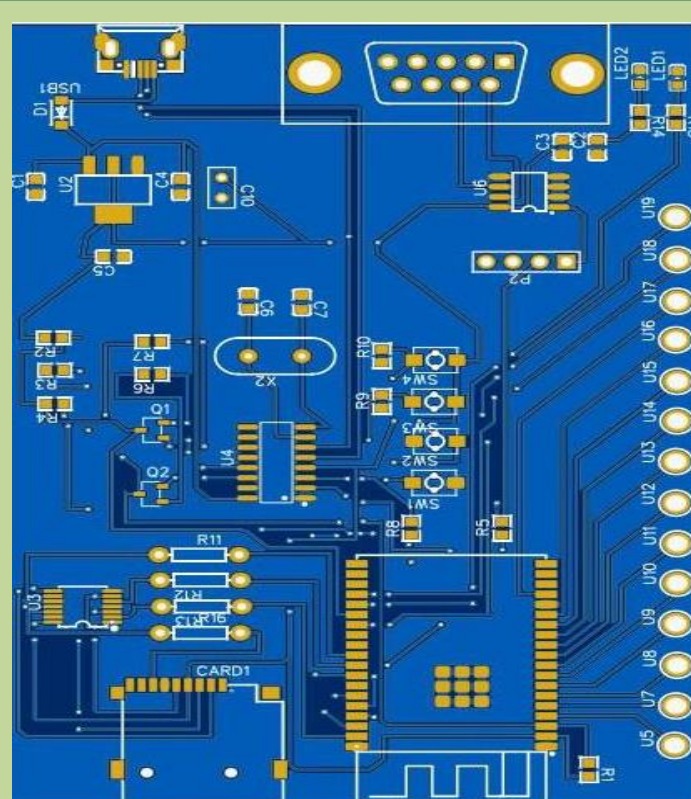
1- Schematic of STM32 blue pill
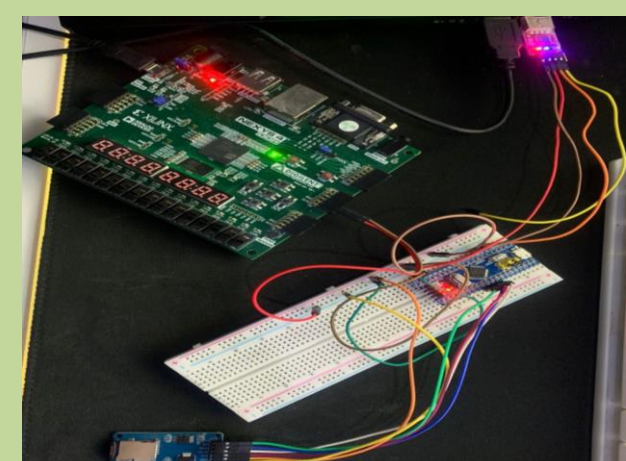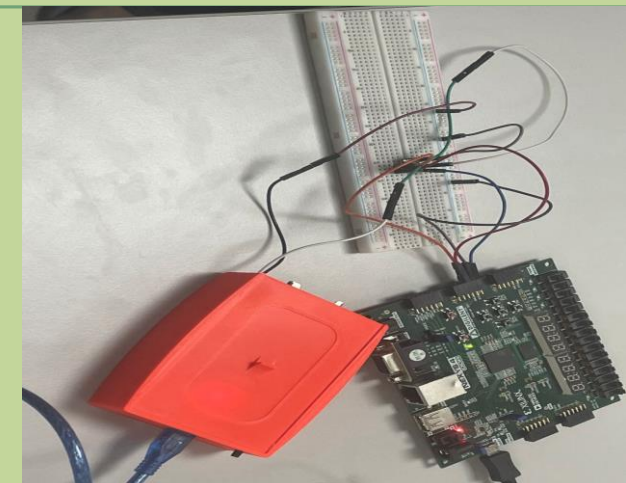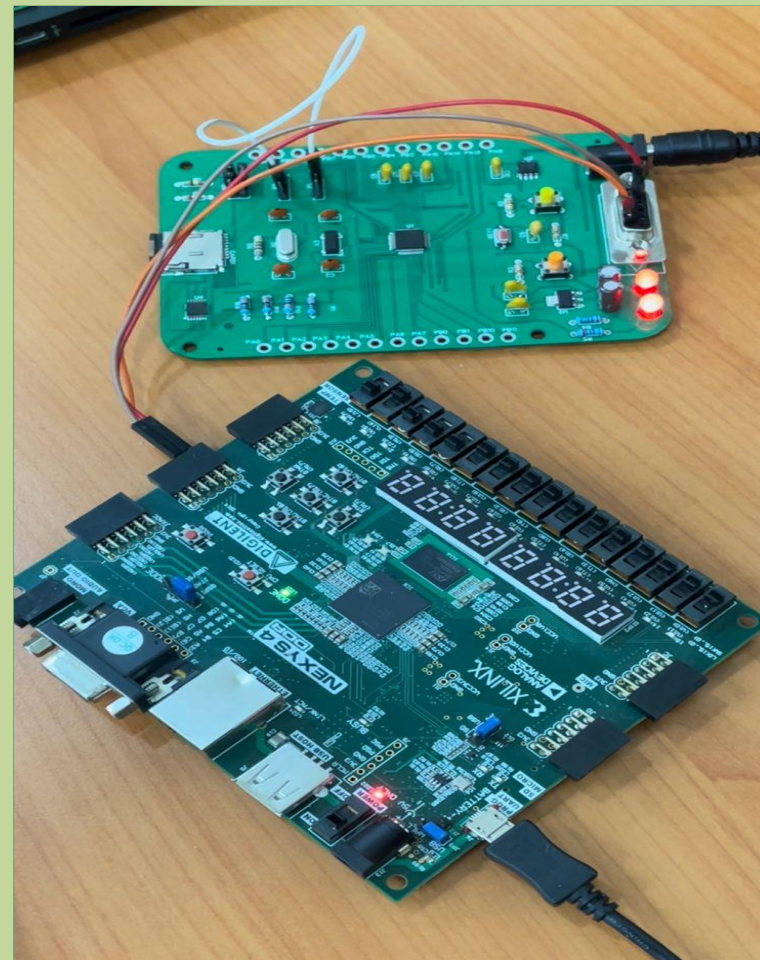
2- Schematic of ESP32

PCB Design

Design PCB of STM32 blue pill   Design PCB of ESP32

Testing

Summary

We have three products, PCB manufactured using STM32 microcontroller, ESP32, and STM32 Blue Pill. The PCB reach a baud rate of 500,000 bps, which is lower than the required rate in the project description. Therefore, we went with the ESP32 option and succeeded in storing the data correctly at a baud rate of 1,834,200 bps.