

EV Battery Level Indicator Using ATtiny85 & 7-Segment Display

PROJECT SUMMARY

This project monitors and displays the voltage level of an electric vehicle (EV) battery using a microcontroller-based setup. The system uses analog voltage sampling, voltage regulation, and a 74HC595 shift register to drive a 7-segment LED display, all designed and tested using KiCad.

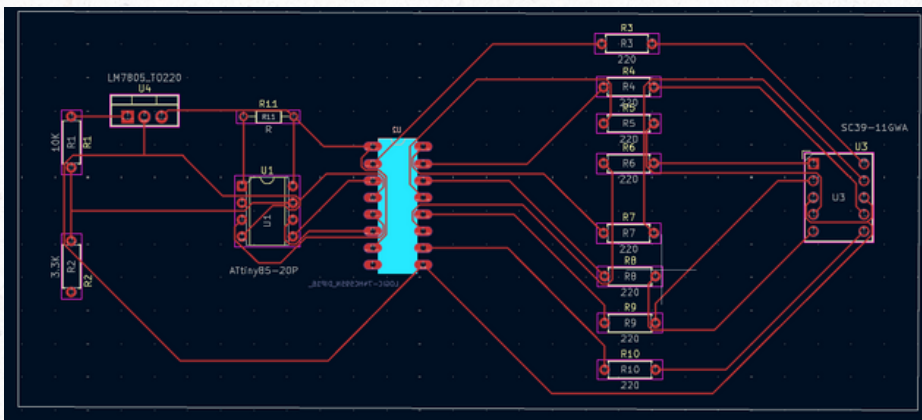
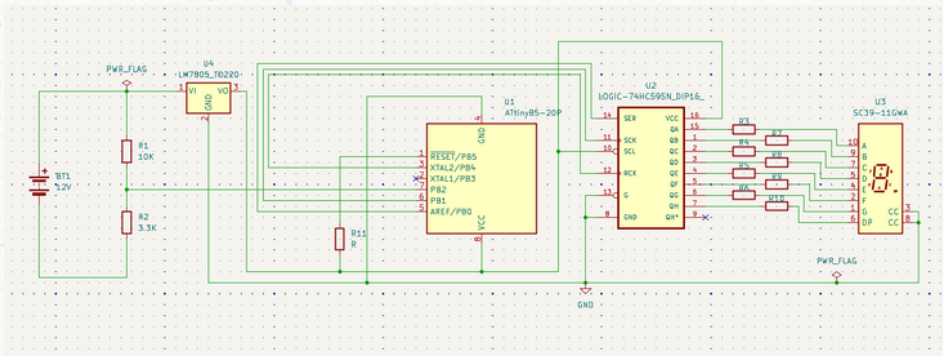
TOOLS AND COMPONENTS USED

- KiCad (Schematic, PCB, Gerber, BOM)
- ATtiny85 microcontroller
- LM7805 Voltage Regulator
- 74HC595 Shift Register
- 7-Segment LED Display
- Voltage Divider Circuit

KEY FEATURES

- Voltage divider to scale high input voltages
- LM7805 for regulated 5V supply
- ADC conversion and logic control via ATtiny85
- 74HC595 for efficient display driving
- Microcontroller-based voltage sampling and control
- Clean schematic and PCB layout in KiCad
- Serial-to-parallel display driver implementation
- DRC/ERC verified design
- Excel BOM and Gerber-ready files for fabrication

VISUAL PREVIEW



Project files: Gerber, BOM, Schematic, etc. Available on <http://bit.ly/4lfRvxw>

Role: Complete design and implementation — from schematic to PCB and documentation

Skills Used: Circuit design, microcontroller programming, KiCad, PCB fabrication process

MICROCONTROLLER PIN MAPPING

ATtiny85 Pin Usage:

- Pin 1 – Reset
- Pin 2 – Input ADC (Battery Voltage)
- Pin 3 – 74HC595 Data
- Pin 4 – GND
- Pin 5 – 74HC595 Clock
- Pin 6 – VCC
- Pin 7 – 74HC595 Latch
- Pin 8 – Battery Input

PROJECT TIMELINE

Project Stages:

- Idea & Requirement
- Schematic Design
- PCB Layout
- DRC/ERC Checks
- BOM Generation
- Documentation