PROJECT DOCUMENT

Subject: Embedded System Hardware Design

Project: Speed control for Stepper motor and DC motor

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1. Objectives

- Acquire the skills to:
  - Design a 2 layer Printed Circuit Board (PCB).
  - Manufacture the PCB
  - Order Components
  - Populate PCB
  - Test board.
- Learn to use Altium schematic capture and PCB layout software.
- Code a way to control the precise speed of DC motor

2. Scope of the project

- Used Altium to create the PCB design and then code the STM32 to control the speed of DC motor using feedback from the encoder.

3. Estimate Cost breakdown

PCB Project Cost Breakdown

- Component
  - JLusion WiFi Scope (Scope, stand, USB): $53.99
  - Terminal Block Adapter: $2.88
  - 17HS4401 Stepper Motor: $28.64
  - DC Motor with Encoder: $18.03
  - LV8712T Motor Driver Board: $1.51
  - OLED Display: $10.00
- Manufacture PCB: 5$ (Link)

4. Block diagram

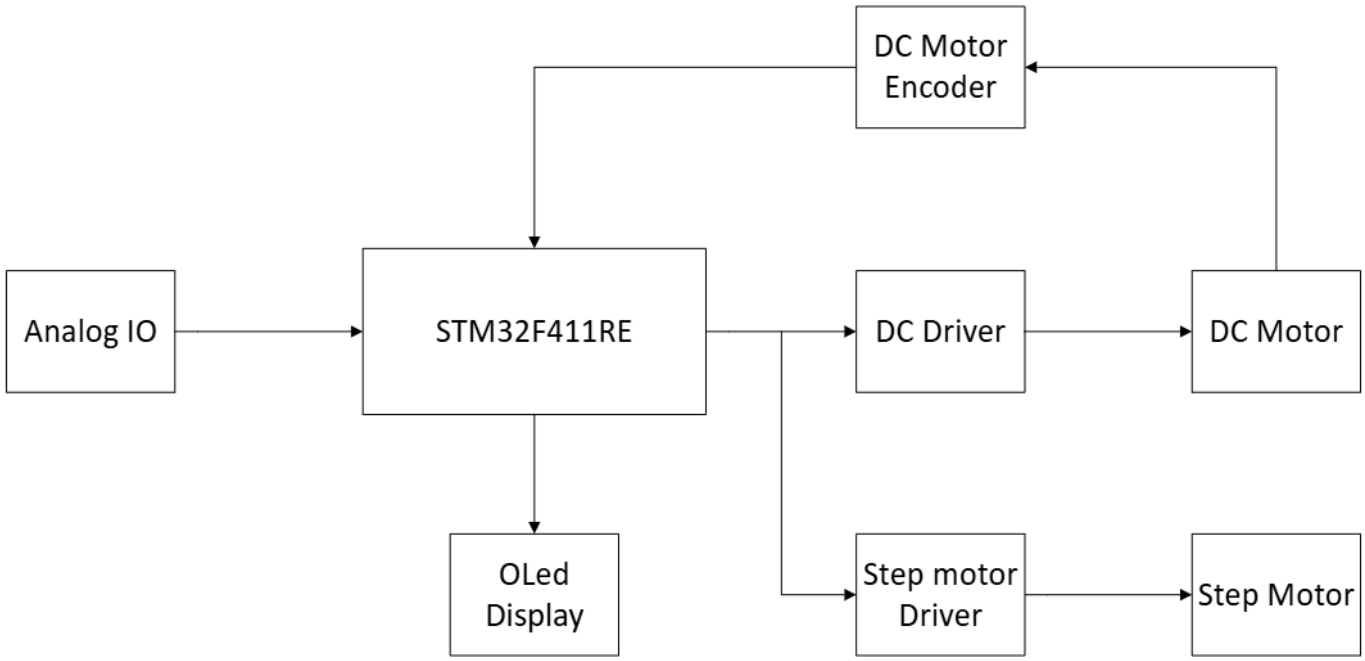

Figure 4-1: Block diagram'

5. Software Design

REFERENCES