**Embedded System Design Course**

**Project:** Design controller system for DC motor

Class: EE-E8-01 K63 Group: 14

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1. Overview

The content of this project is design an embebded controller for DC motor , device designed above for speed and direction control applications for motors in general, the motor of the conveyor...This device also supports serial data transmission of the motor via RS232 and RS485 protocol.

1. Specifications of project

|  |  |
| --- | --- |
| DC motor | 24 V DC – 100 W |
| Supply voltage | 24 V DC |
| Curent max | 20A |
| Communicate | RS232 ,RS485 |
| Input | 8 Digital input (V=10-36V)  8 Analog input (V=0-10V;I=4-20mA) |
| Output | 8 Digital output (V=24V)  6 Analog output (V= 0-10V ; I= 4-20mA) |
| Drive | H bridge |
| User interface | LCD 16x2 ,button, keyboard |
| Control mode | Speed, position, current |

1. Block diagram

Power 2

Power 1

Encoder

Measure current

PWM

H bridge

AI, AO

Filter

Protect Circuit

ADC/DAC

Protect Circuit

DI,DO

Button, keyboard

Microcontroller

LCD

RS485

RS232