	HASAN KALYONCU UNIVERSITY **Electrical-Electronics Engineering Department** **EE 499 Project Proposal Form**

Part I.   Project Proposer

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		Date	19.09.2024

Part II.   Project Information

Title of the Project	DC Motor Speed Control Using Microcontroller				
Maximum Cost of implementation (TL)	5.000 TL	Conceptual Design Dead Line	in 6 weeks	Prototype Production Deadline	in 13 weeks
Standards and licenses to be used in the project. example; IP65, IEEE, APACHE, MIT, etc.	ISO 26262				

Project Description
This project focuses on designing a system to control the speed of a DC motor using a microcontroller. The control system will utilize pulse-width modulation (PWM) to vary the motor speed according to user inputs, with real-time feedback provided by sensors. The microcontroller will adjust the motor's duty cycle based on the desired speed, providing precise control for applications such as robotics, electric vehicles, or industrial automation.

Project Justification

Novelty

New aspects	Real-time monitoring and control via a mobile app or PC interface Integration with wireless communication for remote speed control

Complexity

Challenging problem and issues	Ensuring precise motor control under varying loads Avoiding excessive power losses during low-speed operation Maintaining system stability in high-load conditions
Related electrical-electronics science fields and subfields	Control Systems, Embedded Systems, Power Electronics, Mechatronics
Tools	Arduino or PIC microcontroller for control implementation MATLAB/Simulink for control algorithm development H-Bridge circuits for motor control SolidWorks for motor housing design (if necessary)

Risk involved

Potential problems and alternative solutions	Inaccurate speed control due to noise or instability. Potential motor damage from improper control or excessive current draw
Minimum work required	20 hours per week for 14 weeks with 2 developers