AN ARDUINO BASED SMART SYSTEM AND ACCIDENT PREVENTION SYSTEM USING EYE BLINK SENSOR

A PROJECT REPORT

Submitted by

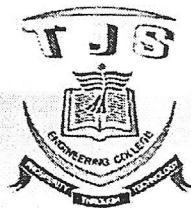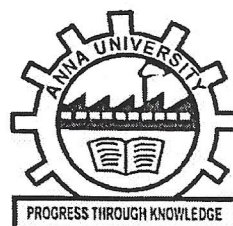|	
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In partial fulfilment for the award of the degree

of

BACHELOR OF ENGINEERING

in

ELECTRONICS AND COMMUNICATION ENGINEERING

T.J.S. ENGINEERING COLLEGE, PERUVOYAL, CHENNAI

PROGRESS THROUGH KNOWLEDGE

ANNA UNIVERSITY: CHENNAI 600 025

JUNE, 2022

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report "AN ARDUINO BASED SMART SYSTEM AND ACCIDENT PREVENTION SYSTEM USING EYE BLINK SENSOR" is the bonafide work of the following students

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Who carried out the project work under my supervision.

SIGNATURE

Dr.S.VELMURUGAN, M.E., Ph.D.,
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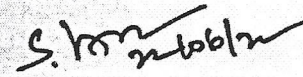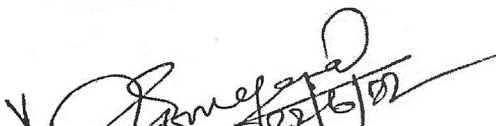T.J.S. Engineering College,
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SIGNATURE

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Submitted for viva voce held on 22.06.2022 at T.J.S. Engineering College, Peruvoyal, Chennai

INTERNAL EXAMINER

EXTERNAL EXAMINER

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I
ABSTRACT

Now a days One of the most common causes of road accident is less conscious driving. When running by less conscious and drowsy we cannot take care of our own this causes accident. When we do all the vehicles with an automated safety system that provides the driver with a high degree of protection. This machine has an eye blinking sensor. Once the driver starts the engine, the sensors automatically detects the blink of the eye. In this device sensor outputs are given for comparison to the ARDUINO. If the value hits a set level,the buzzer sound automatically starts and next level a slight vibrator will be triggered. And the vehicle will slow down vehicle will be parked alongside of the road so that there will be no accidents occurring.

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EC8391 CONTROL SYSTEMS ENGINEERING

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OBJECTIVES:

- To introduce the components and their representation of control systems
- To learn various methods for analyzing the time response, frequency response and stability of the systems
- To learn the various approach for the state variable analysis.

UNIT I SYSTEMS COMPONENTS AND THEIR REPRESENTATION 9

Control System: Terminology and Basic Structure-Feed forward and Feedback control theory Electrical and Mechanical Transfer Function Models-Block diagram Models-Signal flow graphs models-DC and AC servo Systems-Synchronous -Multivariable control system

UNIT II TIME RESPONSE ANALYSIS 9

Transient response-steady state response-Measures of performance of the standard first order and second order system-effect on an additional zero and an additional pole-steady error constant and system- type number-PID control-Analytical design for PD, PI,PID control systems

UNIT III FREQUENCY RESPONSE AND SYSTEM ANALYSIS 9

Closed loop frequency response-Performance specification in frequency domain-Frequency response of standard second order system- Bode Plot - Polar Plot- Nyquist plots-Design of compensators using Bode plots-Cascade lead compensation-Cascade lag compensation-Cascade lag-lead compensation.

UNIT IV CONCEPTS OF STABILITY ANALYSIS 9

Concept of stability-Bounded - Input Bounded - Output stability-Routh stability criterion-Relative stability-Root locus concept-Guidelines for sketching root locus-Nyquist stability criterion.
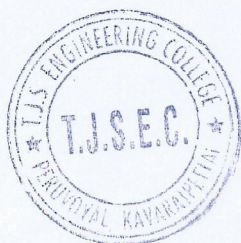
UNIT V CONTROL SYSTEM ANALYSIS USING STATE VARIABLE METHODS 9

State variable representation-Conversion of state variable models to transfer functions-Conversion of transfer functions to state variable models-Solution of state equations-Concepts of Controllability and Observability-Stability of linear systems-Equivalence between transfer function and state variable representations-State variable analysis of digital control system-Digital control design using state feedback.

TOTAL:45 PERIODS

OUTCOMES: Upon completion of the course, the student should be able to:
- Identify the various control system components and their representations.
- Analyze the various time domain parameters.
- Analysis the various frequency response plots and its system.
- Apply the concepts of various system stability criterions.
- Design various transfer functions of digital control system using state variable models.