VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590 010

PROJECT REPORT ON

"ANTENNA DRIVE MECHANISM FOR SATELLITE TRACKING SYSTEM"

Submitted in partial fulfillment of the requirements for the award of degree

BACHELOR OF ENGINEERING
IN
ELECTRONICS & COMMUNICATION ENGINEERING

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CERTIFICATE

*Certified that the project work entitled "***ANTENNA DRIVE MECHANISM FOR SATELLITE TRACKING SYSTEM***" is a bona fide work carried out by*

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in partial fulfillment for the award of BACHELOR OF ENGINEERING in **ELECTRONICS & COMMUNICATION ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2019–2020. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

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ABSTRACT

Over the last decades, control system and its design have been advancing rapidly to respond to the competition and demand of the industrial world, which are the key element in defining new successes. Therefore, pilot plants were created to explore and examine the effects of changing the conditions of a process, especially to control unstable systems. To execute a similar process, this work is directed towards the design, development and implementation of an auto-tuning Proportional Integral Derivative (PID) Controller for Satellite tracking system. Auto-tuning PID controller was designed using MATLAB, Simulink as well as the optimization of PID controller without excessive mathematic calculations. In this project, the value of K_p (proportional gain), K_i (integral gain) and K_d (derivative gain) will be calculated using manual calculation while step response graph for each cases will be solved using Simulink.

For domestic or industrial works motion control is required. The systems that are employed for such controls are called drives. The closed loop systems overcome the problem for disturbances by measuring output response and feeding that through feedback system and comparing them at summing junctions. The performance of a DC motor controlled by a PID controller is analyzed. Overshoot appears with large settling time thereby confirming the behavior of a PID controller. Fuzzy logic based controller is used along with dc motor. In this project, the tuning method used for the proposed position control model of dc motor is Ziegler Nichols (ZN) tuning algorithm. Here, a computer based model (using MATLAB SIMULINK) is furnished. The focus of this project is to design a drive mechanism for satellite tracking system for controlling of antenna in real time tracking system, rate based control, position control, and automatic tuning system with step function and velocity function.