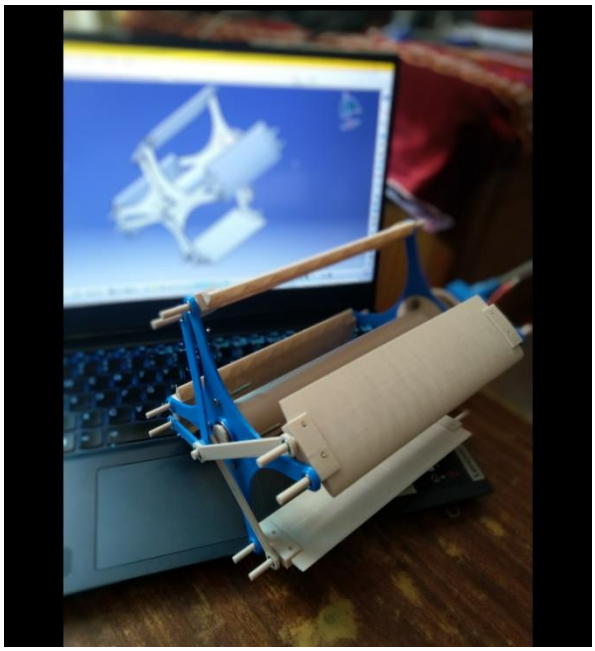
Department of Automobile and Mechanical Engineering
FYP REPORT NO: 010

Batch: 2075	Program: **Bachelor's in mechanical engineering (BME)**

Final Year Title: **DESIGN AND DEVELOPMENT OF CYCLOROTOR FOR PARAMETRIC STUDY OF THRUST VECTORING**



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Abstract:

Cyclorotor is a horizontal axis propulsion system with airfoil blades attached between two rotor wheels parallelly to the axis of rotation. The unique feature of this propulsion system is the variable pitching mechanism which offers better maneuverability characteristic for air vehicles. This propulsion system is claimed to produce adequate thrust even at low speed which helps to simplify the rotating mechanism and reduce noise which has widened its scope for use in VTOL aircraft. Research has been going on in this field with the quest of optimizing it for use in air vehicles. It is important to have a better control system for propulsion systems and aircraft to acquire airworthiness. For a better control system of the variable pitching mechanism in a cyclorotor, it is required to have knowledge on the thrust vector pattern. Hence this report discusses the experimental study of thrust vector in cyclorotor where the thrust vector pattern is analyzed with respect to the eccentricity phase angle.