IIT2018031 **HUR Project F**

Inverse kinematics solves the problem of how to control the arm arm joints to achieve the desired result positions, which is important for any robot arm design and the use of control algorithms. It is a common misconception that kinematic analysis of closed form is resolved. Popular software and algorithms, such as the reduction of gradients or various problem-solving algorithms, claims solving inverse kinematics but only on the numerical level. While the numerical inverse kinematics solutions are relatively straightforward to obtain, these methods often fail, due to dependency on specific numerical values, even when the inverse kinematics solutions exist. Therefore, closed-form inverse kinematics analysis is superior, but there is no generalized automated algorithm. Till date, the rational thinking involved in solving Inverse kinematics against the closed form has made it difficult to do it on its own, so it is handled by human professionals. The main advantage of the proposed inverse kinematics solution compared to existing approaches is its accuracy, its efficiency, and the elimination of singularities.

Link to Google colab file :-
https://colab.research.google.com/drive/1UPsMT_KqXmb95uASnjlawkGJIK8xyvpx?usp=sharing