

## **PREFACE**

Research has demonstrated that regions in lower socioeconomic status are frequently at higher risk of contracting mosquito-borne diseases like dengue, which can be life-threatening. This study endeavors to utilize digital image analysis to detect and distinguish water tanks present on rooftops and swimming pools. By doing so, it aims to categorize and identify areas based on their socioeconomic index. The Mainly aim of this endeavor is to give valuable assistance to public health programs in effectively managing and controlling diseases associated with the *Aedes aegypti* mosquito.

In the past, the *Aedes aegypti* mosquito played a significant role in causing major yellow fever outbreaks in urban areas of Brazil. Although efforts were made to eradicate this mosquito species from the country in the 1950s, it resurfaced in the 1970s. Consequently, Brazil has experienced dengue epidemics since the 1980s, characterized by a rise in severity.

Apart from being a carrier of these diseases, the *Aedes aegypti* mosquito has the potential to transmit other arboviruses, including the Mayaro virus. Moreover, there is a risk of yellow fever reemerging in urban areas due to the mosquito's ability to transmit the disease.

As a result, we have reached the conclusion that it is indeed feasible to identify objects in digital images that are closely associated with the socioeconomic status of a particular area. This finding highlights the practicality and applicability of this approach for conducting survey which are focused on health concerns.