Passenger flow research is of great importance to various scientific disciplines such as mechanical engineering and civil engineering, surveying, and transport. Analyzing the flow of passengers allows you to obtain data that is important for many fields of science and practical applications. In the field of transport, passenger flow studies help design and optimize transport systems, such as subways, trams, buses, or rail systems. They allow analyzes of the movement of people in different situations, which allows the design of more effective, safe, and comfortable transport systems. Passenger flow research will contribute to the improvement of the technical analysis of the phenomenon of movement and lead to changes in the analysis of the concept of interior development of public transport vehicles towards improving the time of passenger exchange and making public transport more competitive, and thus to creating sustainable urban transport that is competitive to individual transport. The basis of the planned research will be the visual counting of passengers in selected cities in Central and Central-Eastern Europe. The numerical data collected in various means of transport will allow us to deduce what were the reasons for the change in the pace of passenger flow. Passenger flow studies are also important to public safety and security strategies. They allow for a better understanding of human behavior in emergencies, such as fires, accidents, or terrorist attacks. In the face of the war in Ukraine, it became particularly important to predict the behavior of people while moving in crowded stations or bunkers. This enables the development of more effective evacuation strategies and protection systems, contributing to the protection of human life and health in crises. Records will be carried out using various types of cameras. The obtained results will be validated, and the conclusions obtained from them will allow us to determine the causes of changes in the dynamics of passenger movement. Based on the analogy between the dynamics of passenger traffic and the flowing fluid, it was decided to perform CFD analyses of vestibule models using Ansys Fluent software and to compare the analyses of the passenger flow with numerical flow results. As part of the implementation of the Sustainable Urban Mobility Plan (SUMP), the European Union imposes requirements on the Member States regarding the optimization of public transport and the introduction of smart technologies. Conducting research in this area may contribute to the introduction of new standards in the preparation of SUMPs. The final product of the research is to be a smart passenger counting system, along with an algorithm to determine the optimal capacity of public transport, which is also adaptable to use in other areas, with particular emphasis on the ability of crisis management during the evacuation of the population.