

## System and method for automatic emergency airway detection

## Key Investigator

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## Field

## Emergency Medical Services

Hospital Emergency  
Departments

## Military Medical Services

## Search and Rescue Operations

## Technology

Emergency Medicine  
Airway Management  
Medical Device  
Automated System

## Advantages

Rapid Airway Detection  
Automated Operation  
Precision in Emergency

## Status

Available for licensing

## Patent Status

US20200179631A1

## UMB Docket

## Reference

## External Reference

Emergency Medical Services (EMS) Market is projected to  
(globenewswire.com)

## Summary

The disclosed invention describes an innovative system designed to automatically detect emergency airways. The technology leverages advanced computing and sensor mechanisms to facilitate rapid and precise airway detection in emergency medical situations.

## Market

The global market for emergency medical services (EMS) equipment, which includes airway management devices, is substantial and growing. As of 2030, the EMS market is projected to be \$30.2 billion and is expected to grow at a CAGR of 7.6% from 2022 to 2030. Key trends impacting this market include the increasing prevalence of chronic diseases, growing geriatric population, and rising number of emergency medical hospital admissions.

This technology could significantly disrupt the EMS equipment market. Its automated airway detection system could reduce the time and complexity of emergency procedures, potentially improving patient outcomes. Given the size of the EMS equipment market and the critical importance of effective airway management in emergency medicine, the potential market for this technology is vast.

## Technology

The disclosed technology provides a method and apparatus for automatic emergency airway detection, addressing a critical need in emergency medical procedures. The primary purpose of this system is to accurately and efficiently detect the location of the cricothyroid region in the neck of a subject. The cricothyroid region holds immense significance in emergency situations where establishing a clear airway is of paramount importance for successful patient resuscitation and ventilation.

At the core of this technology is an apparatus comprising a frame with a secure carriage guide encircling the subject's neck. The carriage, equipped with a sensor, smoothly moves along the guide, capturing essential data related to the topography of the neck. By measuring specific parameters indicative of the neck's characteristics, such as size, shape, and surface features, the sensor provides valuable information about the subject's anatomy. This data is then processed to determine the precise position along the carriage guide that corresponds to the cricothyroid region.

By accurately identifying the cricothyroid region, the technology enables emergency medical personnel to swiftly and confidently perform critical procedures such as endotracheal intubation or cricothyrotomy. These procedures require precise knowledge of the cricothyroid location to ensure optimal placement of airway devices. With the aid of this automatic detection system, medical professionals can save crucial time in emergency situations, reducing the risk of complications and potentially saving lives.

Its implementation in various healthcare settings, including hospitals, ambulances, and military medical units, holds great promise for improving airway management practices. By streamlining the detection process, the technology minimizes the likelihood of errors or delays associated with manual identification of the cricothyroid region. This enhances the overall efficiency of emergency medical interventions and contributes to better patient outcomes.