



KAŞİF

AUTONOMOUS VEHICLE

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ÇANKAYA UNIVERSITY
DEPARTMENT OF
COMPUTER ENGINEERING



BOĞaziçi
UNIVERSITY
Robotic
Competition
2nd Place



INTRODUCTION

- Our aim in this project is developing a system which provides security with autonomous and manual modes.
- These modes can be controlled from our KAŞİF android app. While doing that, we keep our soldiers safe and decrease the human power.
- With KAŞİF android app, vehicle also detects and reports dangerous objects which are military-based. We believe that it is an efficient approach for defense and military systems since it provides information in hazardous situations.



THE PROPOSED WORK

- Our system includes multiple hardware and software subsystems.
- We developed an android application with Java language to operate our vehicle.
- Also, we used ESP32 Camera, Arduino Uno board, DC motors, sensors, and other hardware components.
- By using wireless communication, we receive real time video which includes suspicious objects.
- These objects are detected by using YOLO algorithm. In this way, our vehicle can implement self-driving, manual-driving, and object detection operations.



ABSTRACT

On this project, we aimed to provide safety of an area using autonomous vehicle. Therefore, we develop a system which takes tour around of the facility/area and detects are there any suspicious or dangerous objects. Therefore, it makes reconnaissance and surveillance around critical facilities. In this way, we believe that this system prevents incoming military attacks and inform military when there is an emergency.



RESULTS



Our project has following features:

- Object detection
- Autonomous and manual modes
- GPS tracking
- Warning when threats are detected
- Report page about threats
- KAŞİF android app for controlling the features of vehicle

We believe that, with these features, our soldiers can be even safer.