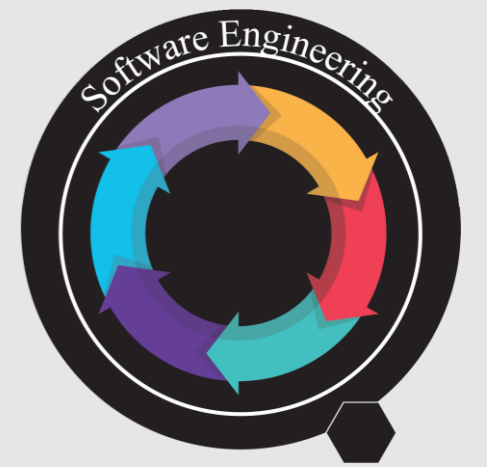




Mine Detection Drone

Cansu Kaymal - Onur Doğan - Ahmet Utku Gökmen
Yaşar Yiğit Özgün – Abdurrahman Altuntop
Burak Zedelenmez – Hasan Korkmaz – Ozan Malçok
Advisor : Bilgin Avenoğlu



Çankaya University, Department of Software Engineering

Abstract

Project involves the development of a mine detection aerial vehicle designed to enhance human safety by detecting landmines. The drone will be remotely launched from a secure location and navigated to a designated area for mine scanning operations. The user interface is developed using appropriate design software to facilitate interaction between the drone operators and the drone.

Introduction

Mines have been used historically in military operations to slow enemy advances, cause material damage, and inflict casualties. Traditional ground-based mine detection methods are slow, hazardous, and often lack definitive results, necessitating the development of safer and more efficient technologies. This project aims to develop a rotary-wing unmanned aerial vehicle equipped with advanced mine detection sensors to enhance operational safety and efficiency. By maintaining a safe altitude of at least 40 centimeters above the ground, the drone will detect mines without triggering them. The project will focus on ensuring stable flight capabilities, seamless integration of mine detection technology, and robust data processing for GPS mapping. An intuitive user interface will be created for efficient control and monitoring. This innovative approach aims to revolutionize mine detection by leveraging drones to provide a reliable and safe solution in mine-affected areas.

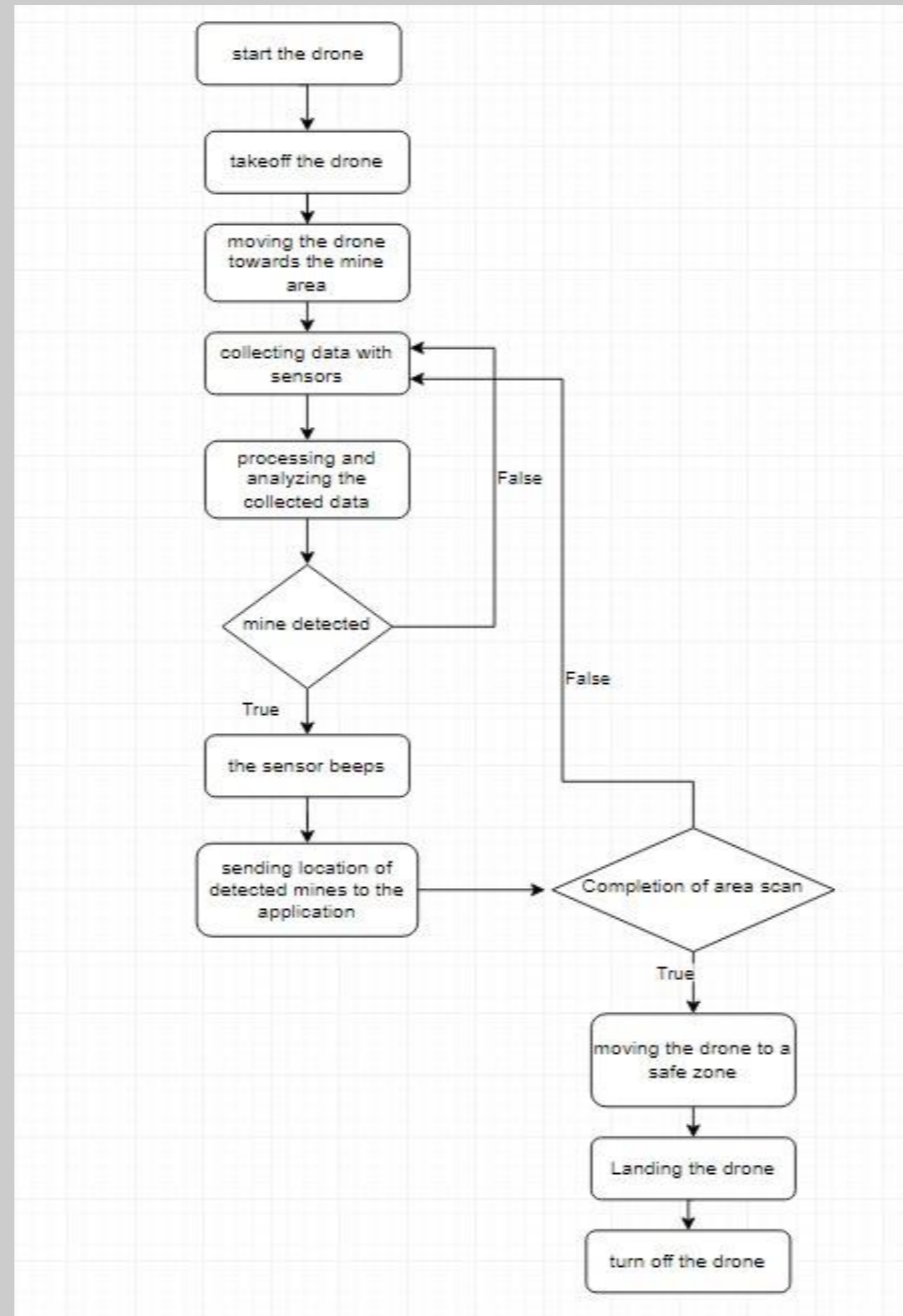


Figure 1 – Activity diagram



Figure 2– Mine Detection Drone

Results & Conclusion

Coding was done using Arduino for the flight control software, communication between the drone and the controller, distance and mine sensor. Transmitting the information received from the drone to the UI.

Acknowledgement

We would like to thank our advisors Bilgin Avenoğlu, Samet Akar and Ayşe Nurdan Saran for their support.



Figure 3– Mine Detection Drone

Team Members

Computer Engineering Team



Ahmet Utku Gökmen

Software Engineering Team



Onur Doğan



Cansu Kaymal

Mechanical Engineering Team



Ozan Can Malçok



Hasan Korkmaz



Burak Zedelenmez



Abdurrahman Altuntop



Yaşar Yiğit Özgün

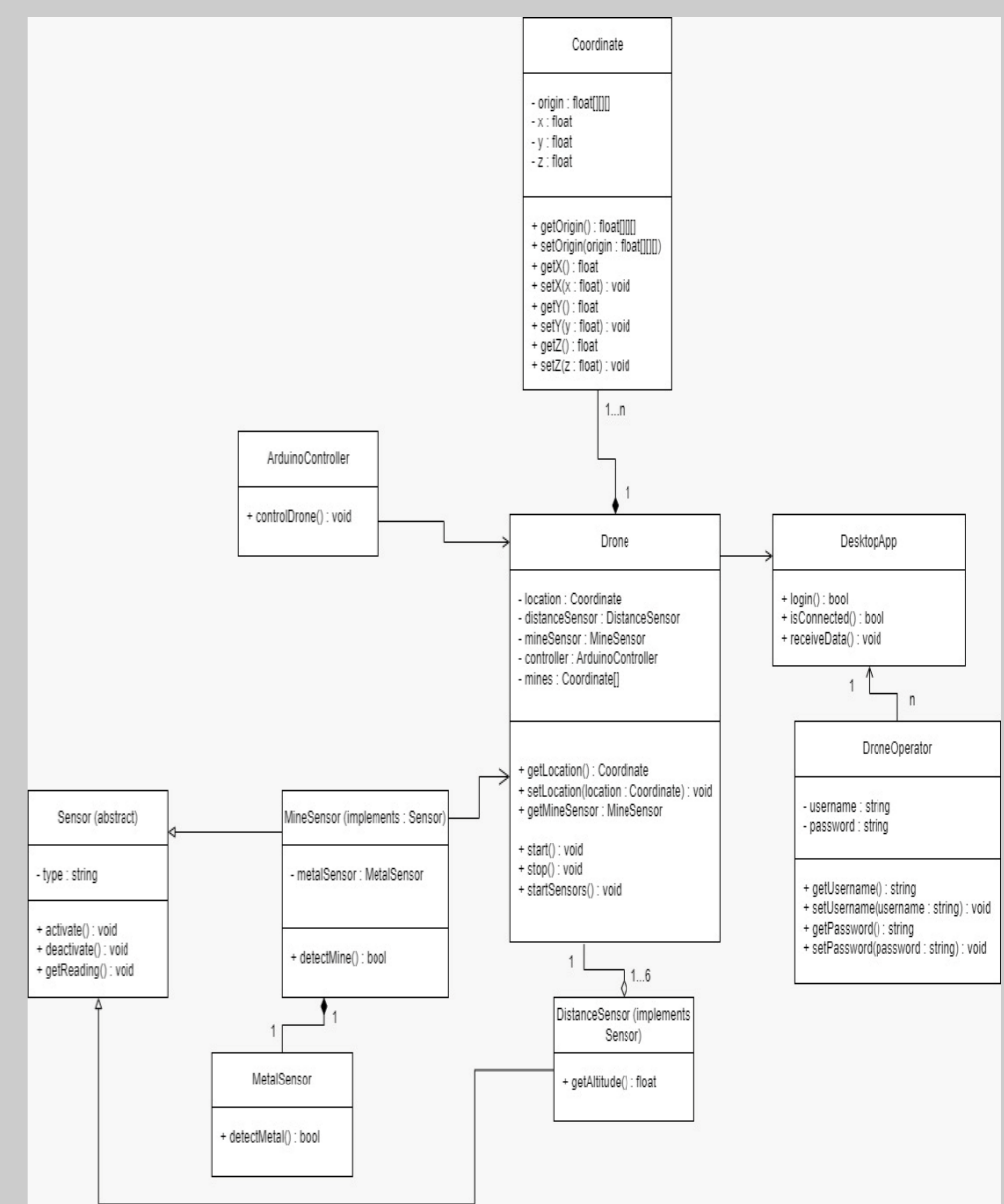


Figure 4 – Class diagram