



# AUTONOMOUS FIREFIGHTING VEHICLE



# INTRODUCTION

With the large losses resulting from fires and the high risks in the process of extinguishing them, and the emergence of artificial intelligence in many magazines, it was necessary to use it to reduce the risks resulting from trying to extinguish fires and reduce losses.

# LITERATURE REVIEW

01

The American authorities announced that the fires that destroyed thousands of homes last November in Malibu and Northern California, killing 88 people, caused material losses estimated to cost at least nine billion dollars

02

These vehicles swiftly detect and suppress fires, enhancing life-saving efforts.

03

Smart vehicles' autonomy, using self-navigation and city maps, accelerates responses, promising a brighter future for firefighting.



# CHALLENGES

01

Technology Integration: The integration of advanced image processing, artificial intelligence, and autonomous navigation systems can present technical challenges in terms of compatibility and system reliability.

02

Obstacle Recognition: Effective obstruction recognition and avoidance is essential for safe autonomous operation in complex environments.

03

Human-AI Collaboration: Ensuring seamless collaboration between human firefighters and autonomous vehicles is critical to effective firefighting operations.



# SOLUTIONS

01

Advanced Sensor Technology: Implement cutting-edge sensor technology to enhance obstacle detection and improve situational awareness.

02

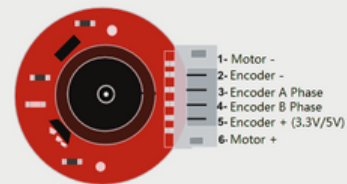
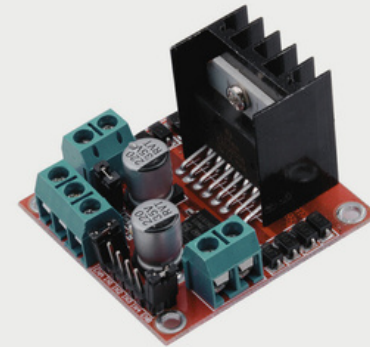
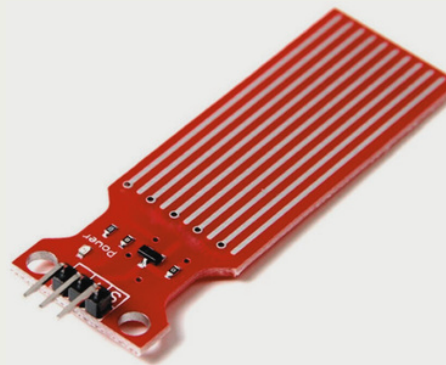
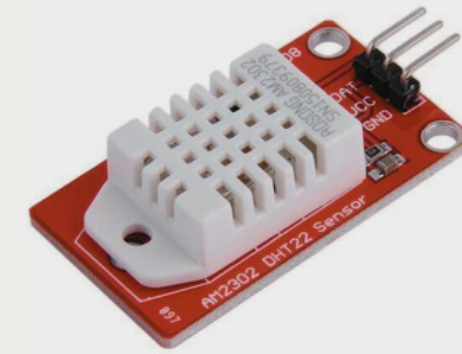
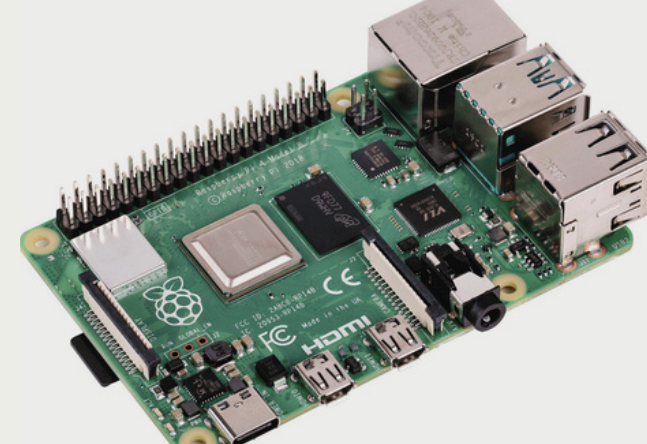
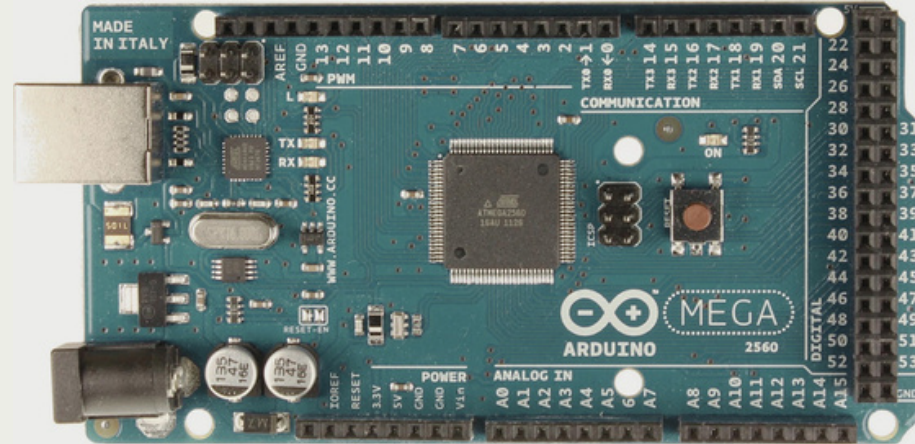
Training and Collaboration: Establish comprehensive training programs and protocols for human-AI cooperation in firefighting scenarios.

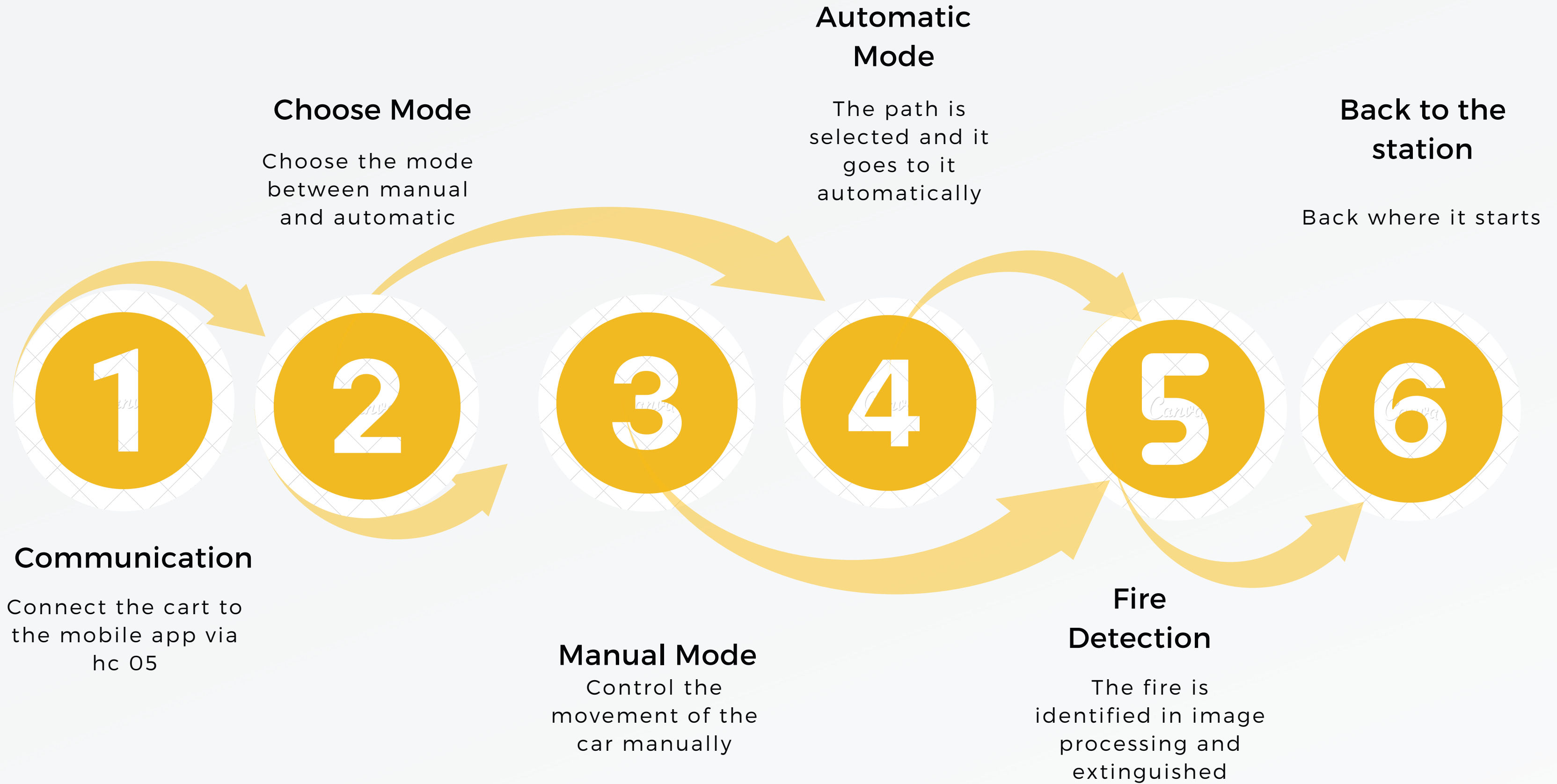
03

Continuous Research: Invest in ongoing research and development to refine technology integration, ensuring seamless operation and addressing emerging challenges.



# PROCESSING UNITS AND USED DEVICES





# FUTURE WORK

01

Automated drones extinguished the fire

02

GPS to reach care if lost or changed direction

03

Water supply vehicle.



# LIMITATIONS

01

The computational capabilities of the Raspberry Pi

02

The high weight of the vehicle

03

Inadequacy of some sensors



# **SUPERVISOR**



**DR. Anas Toma**

**Thanks to everyone who helped us  
and who attended**



# OUR TEAM



**Amr Salman**



**Amer Zagha**

