

# Autonomous Robot

## Specification

Confidential

You have to design autonomous robot which is going to patrol indoor and outdoor in different place (Home, Building, Warehouse, Mall, field, Car parking, etc)

I want professional and stylish robot which having a good looking and must be robust

I want to make prototype for validate the design.

## Chassis

The robot will have Max speed 20km/h

The robot must be able to climb stairs

[The robot must be able to Climb 45° Hill](#)

The robot must be IP 66, IK10

The robot must work from -40 to 70°C

The robot must have high torque

The robot must work during 16 hours none stop

The robot must have 6 wheels

The robot must resist to shock and vibration

The wheels must have suspension

[The robot must work and run in any weather \(Snow, Rain, ....\)](#)

## Camera

Nigh vision range 100 meters

Thermal vision

720p Resolution

360° vision, Zoom optical

Wide vision

You have to design Thermal and Night vision camera

Retractable camera like rovio robot

Telescopic camera

[WDR camera](#)

[High resolution camera](#)

The system must record 1 month of continuous camera record

## Fire

The robot must be able to detect fire and to use embedded extinguisher for extinguish the fire.

The extinguisher muse have 2 liter of capacity and must be removable

## Detection

The robot must be able to detect door opened, fire, intrusion, man walking and sound in range of 100 meters

The robot must be able to detect intrusion behind a wall.

## Intercom

The user must be able to communicate with the robber, or any people.

## Displacement

The robot must be able to obstacle avoidance.

The robot must be able to detect vacuum.

The robot must be able to mapping the building, warehouse during the patrol and select the most efficient run.

The user can configure manually patrol rout for the robot.

The robot must have fluid displacement.

The robot must have powerful Artificial intelligence

The robot must be able to patrol with man

The robot must be able to roll back when the robber want to destroy it

In outdoor the robot must be able to detect car and to take picture of licence plate

The user must be able to configure working time, days for the robot

The robot must have response time less than one second.

## Alarm and flash light

The robot must have 110 decibel alarm

The robot must have powerful flash light

The user can configure the alarm tripping

## Power supply

The robot must have LIFEPO4 battery

The user must be able to configure charging delay and time.

The robot will recharge himself in autonomous

## Wimax Server

The robot must have 5 kms working range from the wimax server to the robot.

Security:

W2PA + AES 128bit

The robot can send by GSM, Email notifications

The Wimax server must have GMS modem inside

The wimax server must have RJ45, phone plugs

## Software

The user can control manually or supervise the robot from internet by using security acces.

The user can control manually or supervise too the robot from Pc with robot software which is in building, warehouse, etc control room.

The software must be displayed on 3 screens in control room.

With the software we can:

- Control manually the robot
- Control the robot camera
- [Supervise the robot](#)
- [Switch on and off the robot](#)
- [Switch the robot manually and Autonomous](#)
- See robot position
- See live robot patrol
- See robot mapping
- Battery level
- Camera position (Lower, Standing and high)
- Robot direction (Like plane)
- Camera direction (Like plane)
- See speed
- Internal temperature
- Network level
- GSM level
- Buttons for activate the alarm, the flashing light and for sending the robot to the charging dock
- Configure charging time and delay
- Configure patrol rout by running the robot
- Read camera recording like DVR
- Configure the robot working time

- Intercom sound
- Alarm tripping (Automated or manually)
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### The contractor Mission

- Design Thermal and Classical camera with night vision
- Design Autonomous Robot
- Design Robot charging dock
- Design Robot server (Wimax server)
- Design Light and Complete Software

### The contractor Skills

- Mechanical design
- 3D design
- Electronics design
- Alghorytm design
- Software design
- Robotics

### Expectation

I want professional robot not student robot, I expect stylish robot with high capacity.

I expect sleek design, for me the body design is very important.