# Stakeholders

| Stakeholder name | Description |

| RVC User | :Final user of the system: |

| RVC Company | :Includes software/electrical/mechanical engineers, marketing people…:|

| RVC Retailer | :Store that buys from company and sells to final users: |

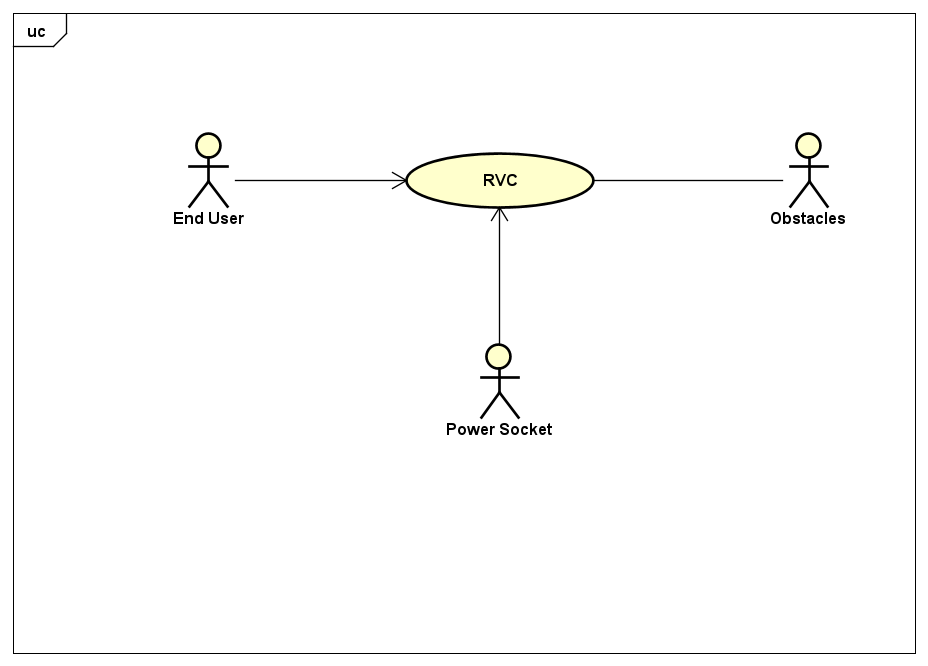
| RVC Maintainer | :Technicians for installation and maintenance: |

| Certification Authority | :Entity that issues safety/energy certificates: |

| Obstacles | :Walls, objects, animals, doors…: |

# Context diagram and interfaces

## Context diagram



## Interfaces

| Actor | Physical interface | Logical interface |

| End user | :On/Off switch: Start switch: Learn switch: | :On/Off command: Start command: Learn command: |

| Power socket | :Shuko standard: | :220V 50 Hz:|

| Obstacle | IR sensor | Detect obstacle |

# Functional and Non-Functional Requirements

## Functional Requirements

FR1 Clean the house

1.1 Brush engine On/Off

1.2 Detect when dust bag is full

FR2 Move autonomously

2.1 Detect obstacle

2.2 Detect gap

2.3 Compute path

2.3.1 Compute path for cleaning

2.3.2 Compute path to return to charging station

2.4 Implement the path

2.5 Compute current position

2.6 Read wheel sensor (direction and speed)

2.7 Control wheels (direction and speed)

2.8 Detect when stuck

2.9 Determine best path

FR3 Learn the map

3.1 Map each tile as free or obstacle

FR4 Manage battery level

4.1 Read battery level sensor

4.2 Charge battery

FR5 Avoid harming people – Safety

5.1 Stop immediately in case of potentially dangerous situation for people or pets

5.2 Check battery temperature

5.3 Check CPU temperature

## Non-Functional Requirements

Refer to ISO 9126

NFR1 RVC should be able to clean at least 100 sqmt with a single charge

NFR2 Energy efficiency: Energy consumed per cleaned square meter should be less than ??

NFR3 Noise level should not exceed 30 dB

NFR4 Cleaning efficiency: No space should be left uncleaned

NFR5 Usability: should not take more than 5 minutes to learn how to use by non-engineer

NFR6 Efficiency: response time to any button should not exceed 1 second

NFR7 Safety: no harm to people should be allowed under any circumstance

7.1 Safety: speed should never exceed x m/s

NFR8 Dependability = safety + availability

8.1 Availability should be no less than 99%