



Software Requirements Specification

YOLO

Version 1.0

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1Introduction

1.1 Purpose of The System

1.2 Scope

1.3 System Overview

1.3.1 System Perspective

1.3.1.1 User Interfaces

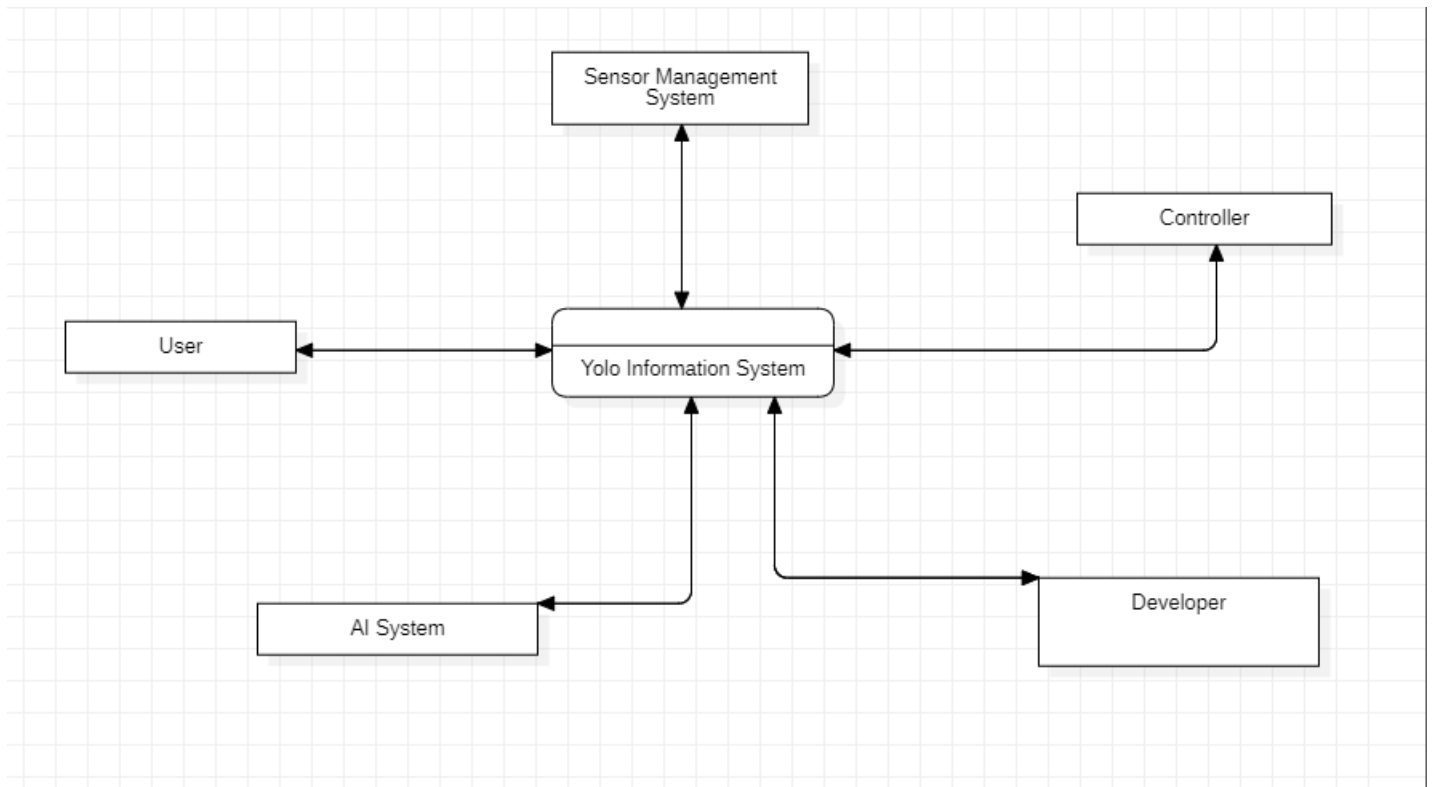


Figure 1: Context Diagram

1.3.1.2 Hardware Interfaces

1.3.1.3 Software Interfaces

1.3.1.4 Communications Interfaces

1.3.1.5 Memory Constraints

1.3.1.6 Operations

1.3.2 System Functions

1.3.3 Stakeholder Characteristics

1.3.4 Limitations

1.4 Definitions

2 References

This document is prepared with respect to IEEE 29148-2011 standard:

29148-2011 - ISO/IEC/IEEE International Standard - Systems and software engineering – Life cycle processes –Requirements engineering.

3 Specific Requirements

3.1 External Interfaces

Following class diagram represents the relationship between interfaces and their functionalities. For explanation of interfaces, please refer to section

1.3.1.2.

3.2 Functions

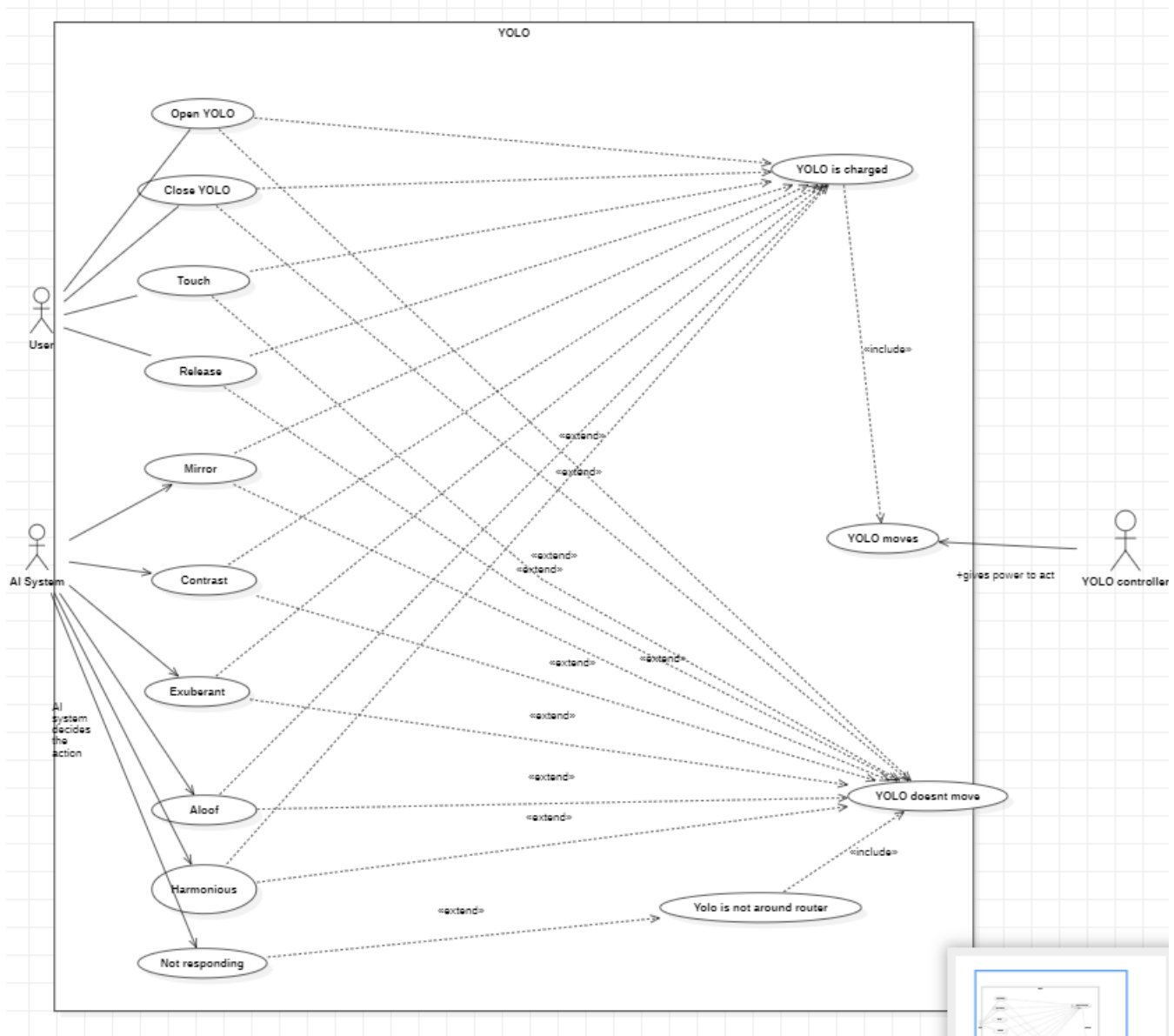


Figure 2: Use-case-diagram

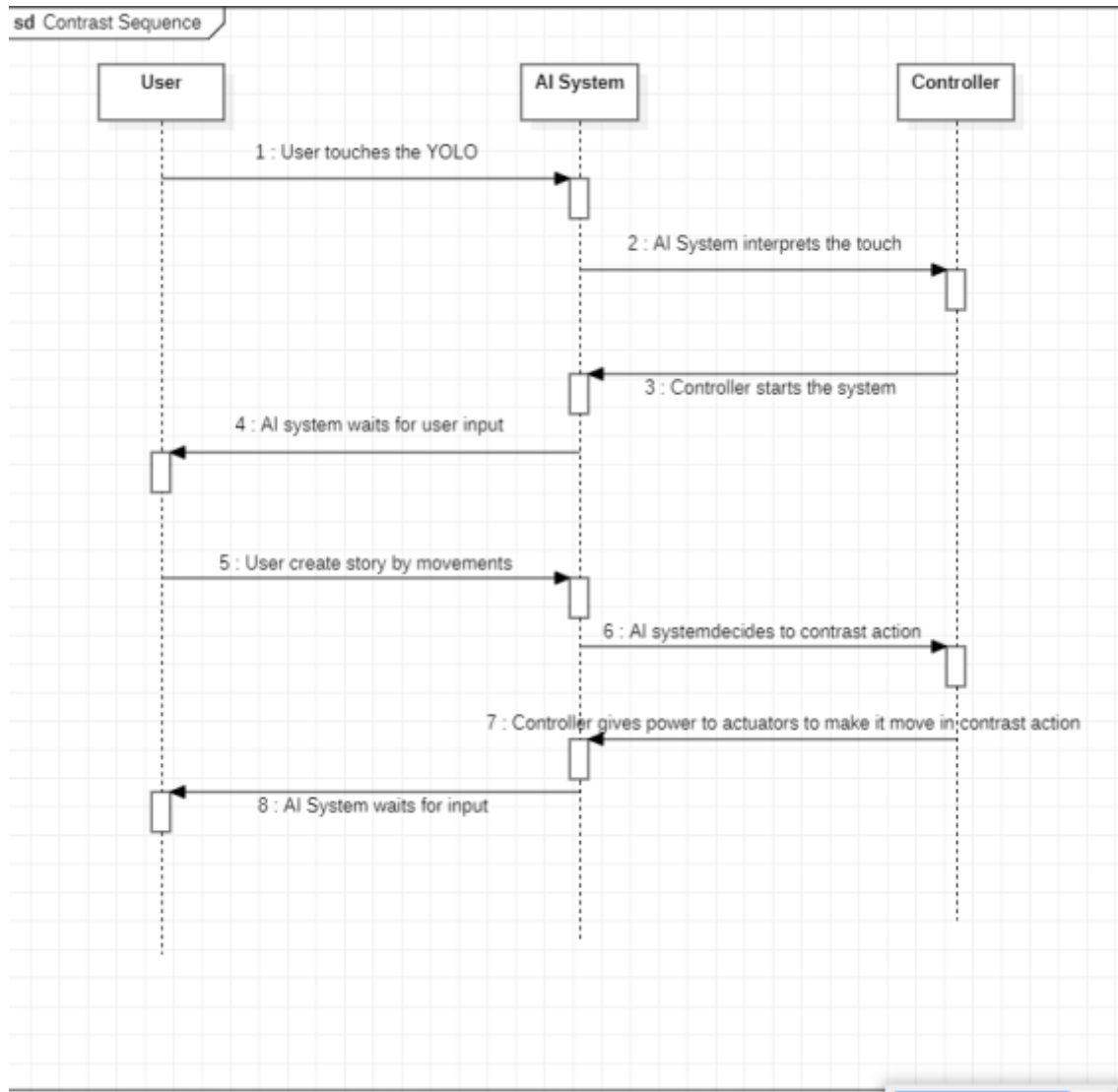


Figure 3: Sequence diagram of “Contrast Action”

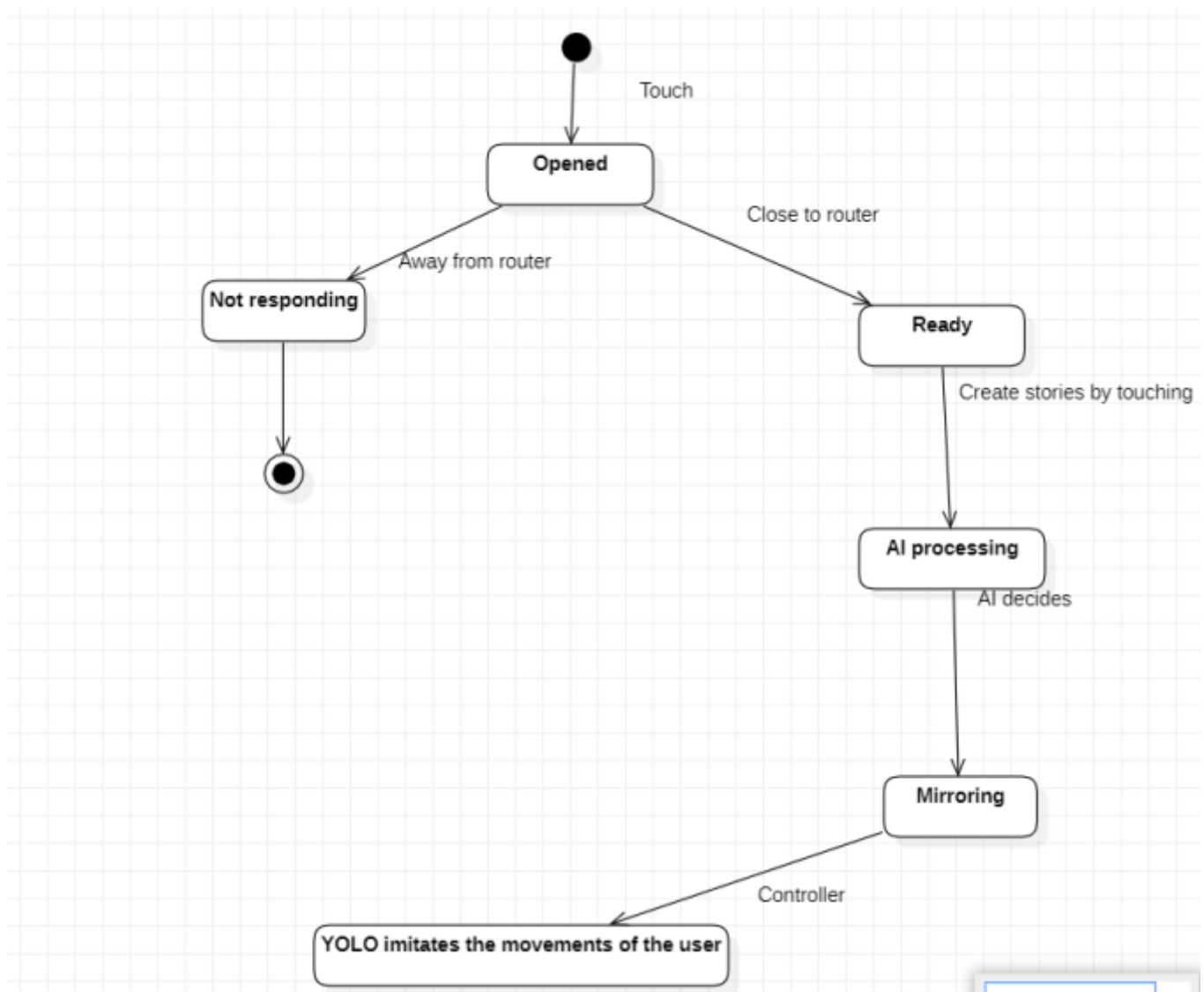


Figure 4: State diagram of "Mirroring Action"

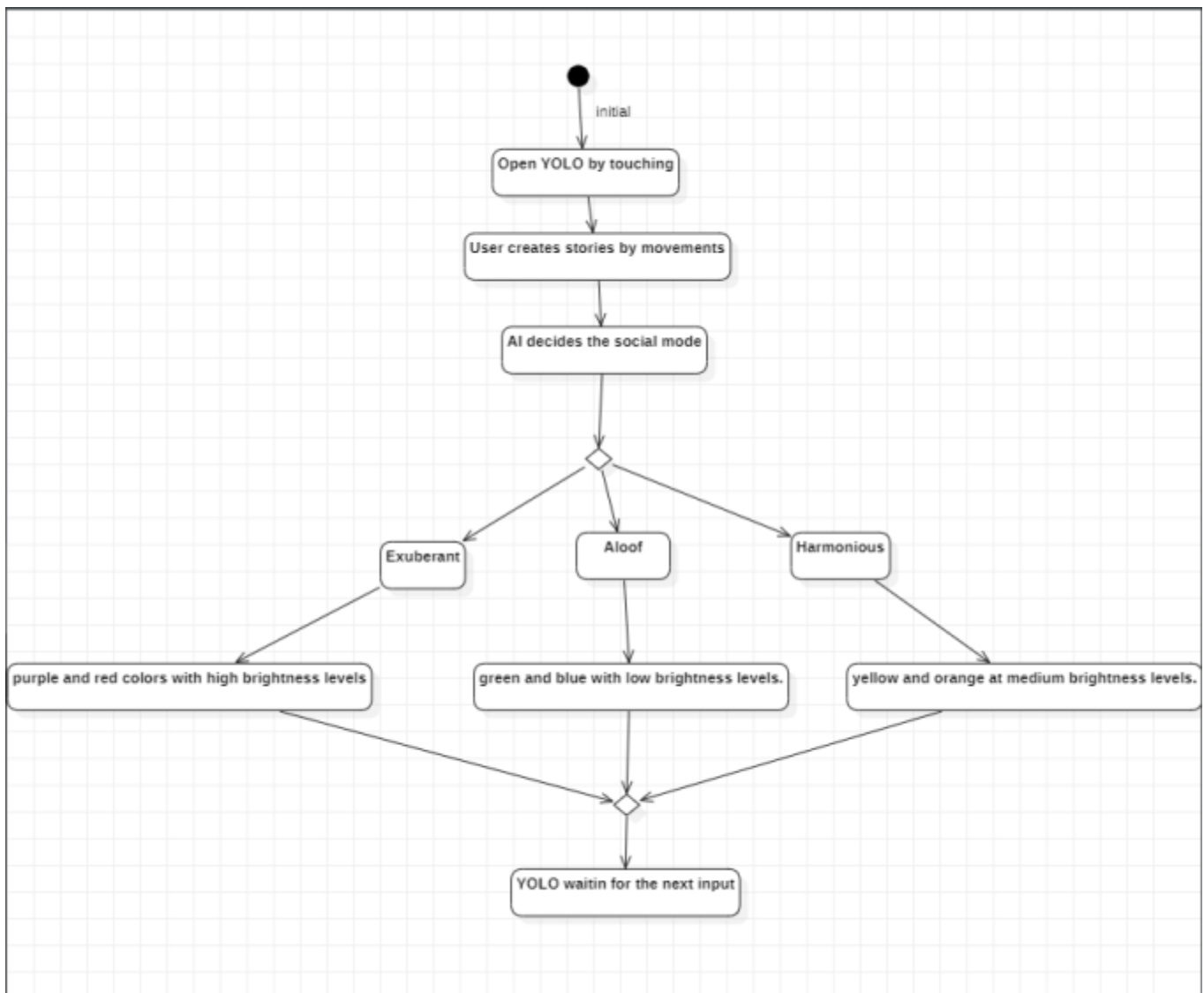


Figure 5: Activity diagram of “Social Mode Choice”

Use case name	Launching YOLO
Actors	User, Yolo
Description	When a customer clicks the start button, device is started and ready to take input from environment.
Data	User input
Preconditions	Yolo must be charged enough to take action.
Stimulus	User clicks the button
Basic Flow	Step 1: User takes the Yolo and puts it on the place where he wants to play with it Step 2: User gets ready to play. Step 3: User clicks the corresponding button to start the Yolo. Step 4: Yolo starts to work
Alternative Flow	-
Exception Flow	Step 4: Charge isn't enough to start the machine Step 5: User charges the Yolo
Postconditions	System is ready to take input from the YOLO.

Table 1: Launching YOLO

Use case name	Shutting down YOLO
Actors	User, YOLO
Description	User clicks the corresponding button in order to shut down the YOLO when s/he wishes.
Data	Pressing the close button
Preconditions	-
Stimulus	User presses the button
Basic Flow	Step 1: User is ready to close the YOLO Step 2: User clicks the close button Step 3: YOLO is shut down
Alternative Flow	-
Exception Flow	Step 4: If any electrical error occurs, the device doesn't shut down
Post Conditions	Yolo can not take any inputs from the environment from now on, because it is shut down earlier.

Table 2: Shutting down YOLO

Use case name	User grabbing the YOLO
Actors	User, YOLO
Description	User grabs the YOLO in order it to follow the movements that user dictates. When user grabs the YOLO, s/he has full control of device meaning that device doesn't try to move on its own
Data	Pressure sensor understand the grabbing action
Preconditions	Device must be launched, it should have enough charge to take action, sensors must be available to take input.
Stimulus	User grabs the YOLO
Basic Flow	Step 1: User approaches the YOLO Step 2: User grabs the YOLO Step 3: User moves YOLO around the surface Step 4: YOLO doesn't act on its own
Alternative Flow	-
Exception Flow	Step 4: YOLO misunderstand the grabbing action Step 5: YOLO tries to act on its own.
Postconditions	User is free to move the device anywhere s/he wants.

Table 3: User grabbing the YOLO

Use case name	Release the YOLO
Actors	User, YOLO
Description	After grabbing the device, user decided to release the device on the desired position.
Data	Pressure sensors doesn't get input from the user anymore.
Preconditions	Device must be charged, device must be grabbed before.
Stimulus	User stops grabbing the YOLO
Basic Flow	Step 1: User reaches the position where s/he wants to release the device Step 2: User releases the device Step 3: YOLO understands the releasing action. Step 4: YOLO stops moving Step 5: YOLO's AI system decides the following action.
Alternative Flow	-
Exception Flow	Step 5: Device doesn't understand the releasing action Step 6: Because of incorrect input, device still stands still and doesn't take action.
Postconditions	YOLO's AI system is in charge now.

Table 4: Release the YOLO

Use case name	AI system is mirroring the action
Actors	User, YOLO AI SYSTEM
Description	Depending on the past movement input of the user such that if user grabs the device and moves it along the straight line when user release the device, YOLO's AI SYSTEM take mirroring action
Data	Past input
Preconditions	Device must be charges and device must be recently released.
Stimulus	Device takes mirroring action and moves accordingly
Basic Flow	Step 1 – User releases the device Step 2 – YOLO AI SYSTEM decides the action according to the past input Step 3 – YOLO AI SYSTEM chooses mirroring action Step 4 – YOLO AI SYSTEM follows the same straight line that user just followed by grabbing the device.
Alternative Flow	Step 4: Device misunderstood the user's path. Step 5: Device takes the contrast action.
Postconditions	Device now in the position that AI SYSTEM chooses to follow.

Table 5: AI system is mirroring the action

Use case name	Device takes contrast action
Actors	Device, AI SYSTEM
Description	Depending on the past movement input of the user such that if user grabs the device and moves it along the straight line when user release the device, YOLO's AI SYSTEM take contrast action
Data	Past input
Preconditions	Device must be charged and released recently.
Stimulus	
Basic Flow	Step 1 – User releases the device Step 2 – YOLO AI SYSTEM decides the action according to the past input Step 3 – YOLO AI SYSTEM chooses contrast Step 4 – YOLO AI SYSTEM follows the random zig-zag line that user just followed by grabbing the device.
Alternative Flow	-
Exception Flow	Step 4: Device misunderstood the user's path. Step 5: Device takes the mirroring action.
Postconditions	Device now in the position that AI SYSTEM chooses to follow.

Table 6: AI system is mirroring the action

Use case name	YOLO chooses Exuberant social mode
Actors	YOLO, Controller, AI System
Description	YOLO's AI System decides to choose Exuberant social mode with the effect of environment such as user. Controller system displays vibrant purple and red colors with high brightness levels.
Data	Environment
Preconditions	YOLO must be charged and launched.
Stimulus	Device chooses Exuberant social mode
Basic Flow	Step 1 – User is playing with the YOLO Step 2 - YOLO's AI System interprets the user's story Step 3 – YOLO's AI System chooses Exuberant social mode Step 4 – Controller system displays vibrant purple and red colors with high brightness levels
Alternative Flow	-
Exception Flow	Step 3 – YOLO's led lights' connection to the controller (or AI System) is misplaced so they do not turn on.
Postconditions	YOLO's AI System is in charge and it will decide the next action.

Table 7: YOLO chooses Exuberant social mode

Use case name	YOLO chooses Aloof social mode
Actors	YOLO, Controller, AI System
Description	YOLO's AI System decides to choose Aloof social mode with the effect of environment such as user. Controller system displays cold colors such as green and blue with low brightness levels
Data	Environment
Preconditions	YOLO must be charged and launched.
Stimulus	Device chooses Exuberant social mode
Basic Flow	Step 1 – User is playing with the YOLO Step 2 - YOLO's AI System interprets the user's story Step 3 – YOLO's AI System chooses Aloof social mode Step 4 - Controller system displays cold colors such as green and blue with low brightness levels
Alternative Flow	-
Exception Flow	Step 3 – YOLO's led lights' connection to the controller (or AI System) is misplaced so they do not turn on.
Postconditions	YOLO's AI System is in charge and it will decide the next action.

Table 8: YOLO chooses Aloof social mode

Use case name	YOLO chooses Harmonious social mode
Actors	YOLO, Controller, AI System
Description	YOLO's AI System decides to choose Harmonious social mode with the effect of environment such as user. Controller system displays warm colors such as yellow and orange at medium brightness levels.
Data	Environment
Preconditions	YOLO must be charged and launched.
Stimulus	Device chooses Harmonious social mode
Basic Flow	Step 1 – User is playing with the YOLO Step 2 - YOLO's AI System interprets the user's story Step 3 – YOLO's AI System chooses Harmonious social mode Step 4 - Controller system displays warm colors such as yellow and orange at medium brightness levels.
Alternative Flow	-
Exception Flow	Step 3 – YOLO's led lights' connection to the controller (or AI System) is misplaced so they do not turn on.
Postconditions	YOLO's AI System is in charge and it will decide the next action.

Table 9: YOLO chooses Aloof social mode

Use case name	YOLO does not respond
Actors	YOLO, Router, (User)
Description	YOLO does not respond or does nothing due to the weakened connection between the router and YOLO.
Data	-
Preconditions	YOLO is far away from the router.
Stimulus	YOLO gets out of the router's range.
Basic Flow	Step 1: User is takes the YOLO and gets it out of the router's range Step 2: YOLO is not able to connect to the router Step 3: YOLO has become unresponsive
Alternative Flow	-
Exception Flow	Step 4: YOLO is placed within the router's range Step 5: YOLO is responsive
Postconditions	YOLO does not function.

Table 10: YOLO not responding

3.3 Usability Requirements

3.4 Performance Requirements

3.5 Logical Database Requirements

3.6 Design Constraints

3.7 Software System Attributes

a) Reliability

b) Availability:

c) Security:

d) Maintainability:

e) Portability:

3.8 Supporting Information

4Verification

5Appendices

5.1Assumptions and Dependencies 5.2Acronyms and Abbreviations