



Furby Robot

Technical

MANUAL

R2-D3 Company

May 2017

Revision Sheet

Release No.	Date	Revision Description
Rev. 0	18/05/2017	User's Manual for 1 st version Furby



User's Manual Authorization Memorandum

I have carefully assessed the User's Manual for R2-D3's Carrying Robot. This document has been completed in accordance with the requirements of System Development Methodology.

MANAGEMENT CERTIFICATION - Please check the appropriate statement.

☒ The document is accepted.

☐ The document is accepted pending the changes noted.

☐ The document is not accepted.

We fully accept the changes as needed improvements and authorize initiation of work to proceed. Based on our authority and judgment, the continued operation of this system is authorized.

Erhan Cengiz Project Leader	18.05.17
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İbrahim Güngen Design Engineer	18.05.17
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Burakhan Yıldız Engineer	18.05.17
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Tuğçe Kara Marketing Responsible	18.05.17
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Büşra Akçadağ Logistic Responsible	18.05.17
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USER'S MANUAL TABLE OF CONTENTS

Page #

A.	GENERAL INFORMATION	A-1
1.1	System Overview	A-1
1.2	Authorized Use Permission	A-2
1.3	Points of Contact.....	A-2
1.3.1	Information	A-2
1.3.2	Coordination	A-2
1.3.3	Help Desk	A-2
1.4	Organization of the Manual.....	A-2
1.5	Acronyms and Abbreviations	A-2
B.	SYSTEM SUMMARY	B-1
2.1	System Description	B-1
2.2	Sensors and Processing	B-1
2.3	User Access Levels	B-1
C.	GETTING STARTED	C-1
3.1	Charge the Battery	C-1
3.2	Switch Configuration	C-1
3.2.1	Role Switch	C-1
3.2.2	Power Switch	C-1
3.3	For Keeping Object	C-1
3.4	For Tracking Object.....	C-1
3.5	Turn off	C-1
D.	USING the SYSTEM	D-1
4.1	Functions	D-1
4.1.1	Right Role.....	D-1
4.1.2	Left role.....	D-1
4.2	Special Instructions for Error Correction.....	D-1
4.3	Caveats and Exceptions.....	D-1
E.	WARRANTY.....	E-2
5.1	Warranty	E-2
5.2	What does this limited warranty cover?	E-2
5.3	What will we do to correct problems?.....	E-2
5.4	How long does the coverage last?	E-2
5.5	What does this limited warranty not cover?.....	E-2
5.6	What do you have to do?	E-2
5.7	Warranty Card	E-3
F.	Appendix.....	F-1



1.0 GENERAL INFORMATION

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A. GENERAL INFORMATION

1.1 System Overview

An intelligent aid for impaired individuals:

- A software system based on python and C++
- Main controller is Arduino
- 3 analog sensor is included
- Camera is used for tracking to target
- System name or title: FURBY
- System code: C38
- System category:
 - *Major application:* performs carrying object without touching the ground with another robot. Two role can be done with robot: tracking target when object is carrying and keep object surface carefully without any damage, this role can be used at the rehabilitation centers to keep stand to patients.
 - *General support system:* make patients healing faster or carrying object carefully
- Operational status:
 - Partially Operational
 - Under development

1.2 Authorized Use Permission

R2-D3 provides you with access to a variety of resources on this website(www.R2D3comp.com), including documentation and other product information, download areas, communication forums, and other services software, including developer tools and sample code, and Application Program Interface information (“APIs”). The Documentation, Services, Software, and APIs (including any updates, enhancements, new features, and/or the addition of any new Web properties to the Web Site), are subject to the following Terms of Use ("TOU"), unless we have provided those items to you under more specific terms, in which case, those more specific terms will apply to the relevant item.

1.3 Points of Contact

1.3.1 Information

Website: www.R2D3comp.com
E-mail: R2D3comp@gmail.com
Phone: 03121232345
Address: METU EE Block-E design lab

1.3.2 Coordination

The list of organizations that require coordination between the project and its specific support function (e.g., installation coordination, security, etc.) are currently not available.

1.3.3 Help Desk

You can get a help with contact phone or Email.

1.4 Organization of the Manual

User's Manual v0.01.

1.5 Acronyms and Abbreviations

Provide a list of the acronyms and abbreviations used in this document and the meaning of each.

App:	Application
Lx:	Linux
Wiki:	Wikipedia
Raspi:	Raspberry pi
Sw:	Switch
Led:	Light emitting diode



2.0 SYSTEM SUMMARY

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B. SYSTEM SUMMARY

2.1 System Description

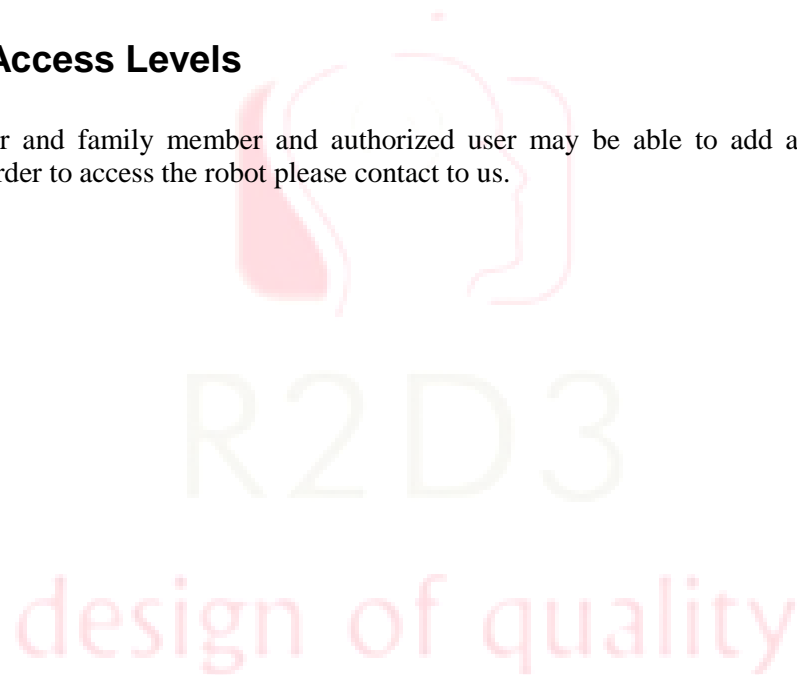
Furby robot includes 2 buttons. One of them is using to on/off switching and other is using for right/left switching. Also, there is a power input to charge battery. Both right and left surfaces have analog sensors and become an active according to chosen role.

2.2 Sensors and Processing

In order to application areas of the product sensors are so sensitive analog sensors data processing one of the controller and camera information are processing another controller.

2.3 User Access Levels

The Primary user and family member and authorized user may be able to add and modify data and information. In order to access the robot please contact to us.





3.0 GETTING STARTED

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C. GETTING STARTED

3.1 Charge the Battery

Initially every robot have a empty battery because of the safety reasons when products are carrying so please charge battery for 3 hours with a charger in the product package.

3.2 Switch Configuration

To operate the robot, please firstly arrange operation switch(right or left) then open the power.

3.2.1 Role Switch

In order to activate any role and surface, please arrange the switch desired way right or left. When switch is right side, robot operates right role.

3.2.2 Power Switch

Open the robot with this switch and please wait a couple minutes to open robot.

3.3 For Keeping Object

Choose right role operation. at this role, robot starts motion when object push the left surface and keep moving until other robot stops or power off.

3.4 For Tracking Object

For this role, robot track desired target (orange color cylindrical object) and arrange speed according to other side robot, motion continues when object push the surface and until pushing is over or power off. When distance between target and robot is smaller than **50cm** robot stops until distance increase.

3.5 Turn off

Just change status of the power switch to turn off.



4.0 USING THE SYSTEM

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D. USING THE SYSTEM

4.1 Functions

Robot has two main functions.

4.1.1 Right Role

Left surface of the robot is movable so when object is push the surface by left robot, robot goes right and also when force of the object decrease robot goes left side with constant speed. Robot detects location and pressure of the object on the surface then algorithm decides motion direction. At this role robot goes desired constant speed except turning times.

4.1.2 Left role

Right surface of the robot is half movable with spring because of eliminate rapid changes of force on the surface. Also, robot detects location of the object and decides speed of the operation to go with right robot. Then, camera detects location of the target then decides direction of motion when object located middle of the right surface.

4.2 Special Instructions for Error Correction

If you faced any problem with devices, firstly power off the robot and then power on the robot then check power led and controller leds. If power leds are off, please charge device carefully or change battery. Therefore if other leds are off when power is on please contact us and say which led is off.

Also, please contact us further error or send robot to our services.

4.3 Caveats and Exceptions

- Please be careful when battery is charging especially, do not keep the battery more than 12 hours on charging.
- Robot has sensitive sensors; do not apply much more mechanical stress on the robot.
- When changing role of the robot, please turn off your device and change role switch then turn on again.
- Do not contact any liquid to robot and do not wash to robot.
- Keep camera lens off when role of the robot is right.
- Please obey the user's manual steps.
- Do not open the robot without our permission to warranty rules.
- Do not stay robot with younger people smaller than 3 years old.



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5.0 WARRANTY

E. WARRANTY

5.1 Warranty

Thank you for your interest in the products and services of R2-D3. This Limited Warranty applies to physical goods, and only for physical goods, purchased from R2-D3.

5.2 What does this limited warranty cover?

This Limited Warranty covers any defects in material or workmanship under normal use during the Warranty Period. During the Warranty Period, R2-D3 will repair or replace, at no charge, products or parts of a product that proves defective because of improper material or workmanship, under normal use and maintenance.

5.3 What will we do to correct problems?

R2-D3 will either repair the Product at no charge, using new or refurbished replacement parts.

5.4 How long does the coverage last?

The Warranty Period for Physical Goods purchased from R2-D3 is 3 years from the date of purchase. A replacement Physical Good or part assumes the remaining warranty of the original Physical Good 3 years from the date of replacement or repair, whichever is longer.

5.5 What does this limited warranty not cover?

This Limited Warranty does not cover any problem that is caused by:

- Conditions, malfunctions or damage not resulting from defects in material or workmanship
- User errors.

5.6 What do you have to do?

To obtain warranty service, you must first contact us to determine the problem and the most appropriate solution for you.

5.7 Warranty Card

Warranty Card

This certificate extends the warranty of the model described _____ for a period of 36 months. This warranty covers the repair or replacement of the broken unit at our discretion. This certificate does not provide coverage for lost or destroyed robots. This certificate is void if altered in any way.

Robot Model#

Robot Serial Number

Date of Purchase

Warranty Card

This certificate extends the warranty of the model described _____ for a period of 36 months. This warranty covers the repair or replacement of the broken unit at our discretion. This certificate does not provide coverage for lost or destroyed robots. This certificate is void if altered in any way.

Robot Model#

Robot Serial Number

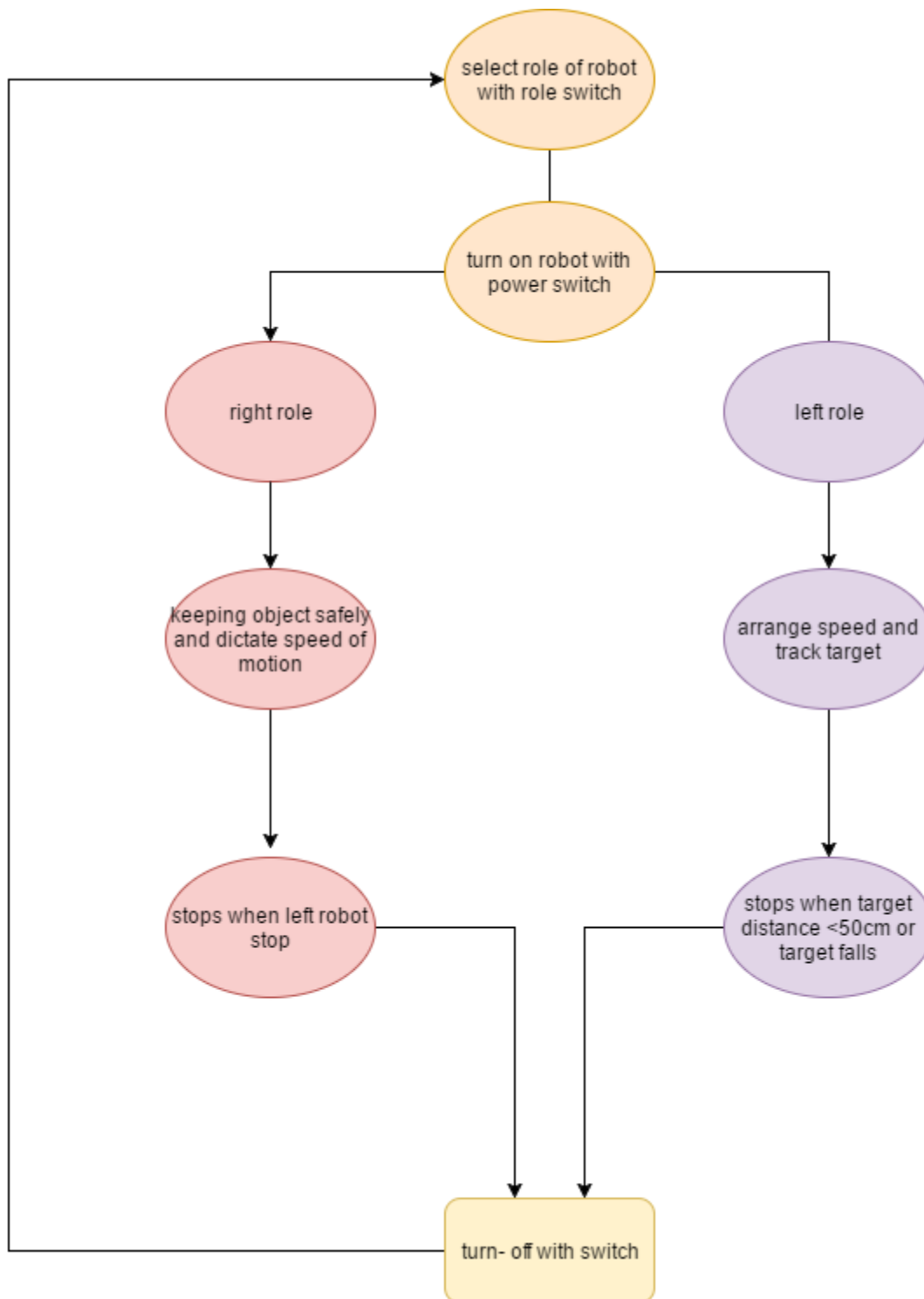
Date of Purchase



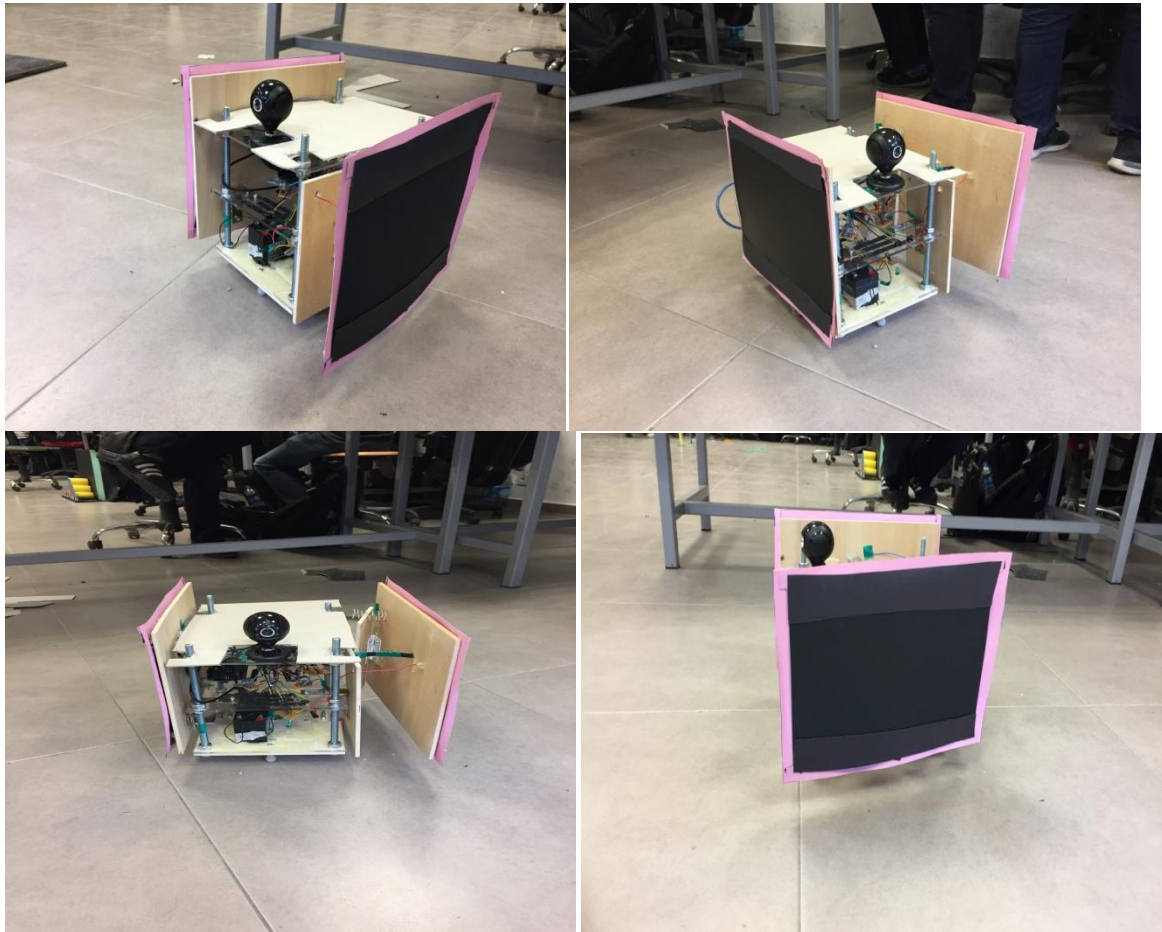
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6.0 APPENDIX

F. APPENDIX

Flow chart of operating



Photos of the product

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