

RoboDry

Mechatronics-Integrated Term Project

Group No.2

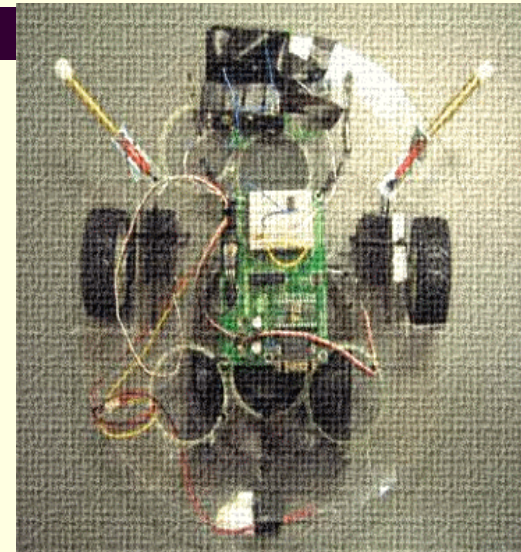
Team Members:

Xin Zheng

Yuen C Wong

Yat Fu

King Wai Sze



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Overview

- Introduction
- Objectives
- Features & Applications of the Project
- How does RoboDry Work
- Dimensions of RoboDry
- Photos & Video Clips of the Components
- Circuit Diagrams
- Analysis on Programming (PBasic) Codes
- Cost Estimation
- Future Possible Upgrades
- Closing

Introduction

- Hotels
- School
- Household Usages
- Indoor & Outdoor Swimming Pool
- Bathroom
- Hallways



Objectives

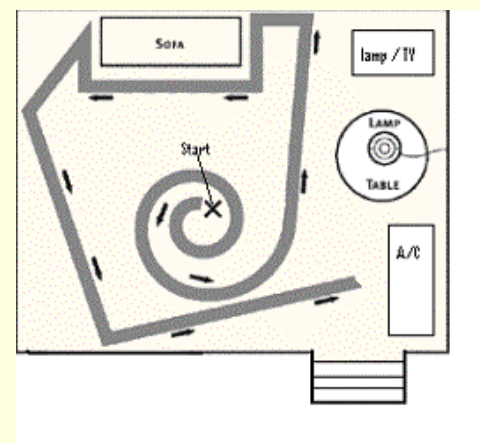
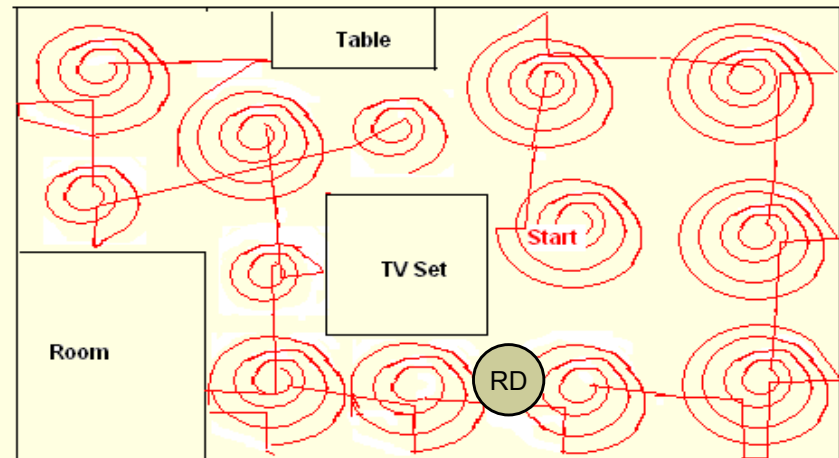
- The goal is to develop a product that is smart, efficient in drying and also cost effective
- Drying process can be done without any human being attended
- It's designed to be user-friendly
- Customers can save money by hiring less workers
- Spend less time working, and more time enjoying their lives.

Features of the Product

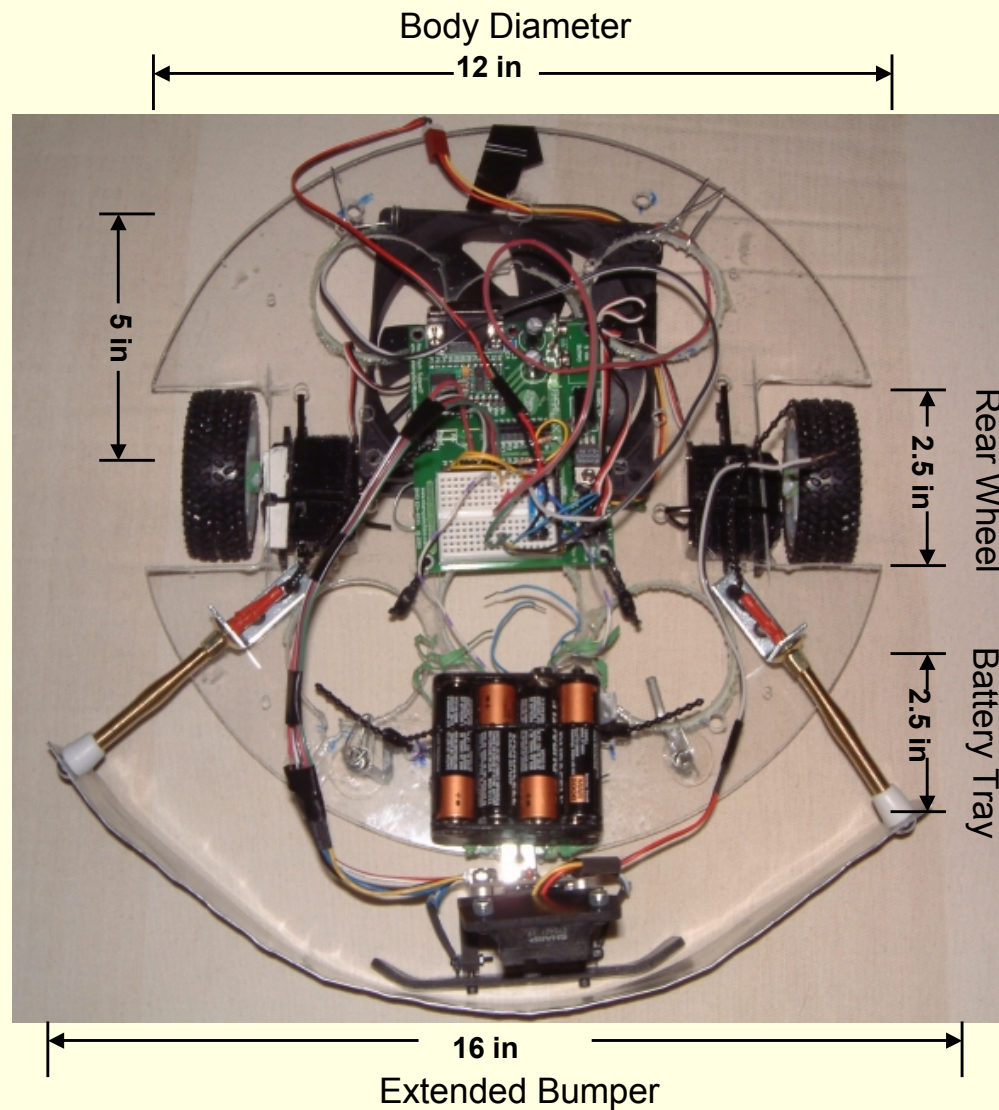
- RoboDry is an smart & automatic drying machine
- It implemented Intelligent Navigation Technology to cover floor surfaces
- Smart Barriers Detection – avoid from running into barriers
- Stop-From-Falling-Detection – prevent from falling
- Very cost effective

How does RoboDry Work?

- Place RoboDry at a Starting Point
- Start Covering the surface in circle
- If blocked by any obstacle, the unit will turn left
- Keep running again



Dimensions of the RoboDry



Components

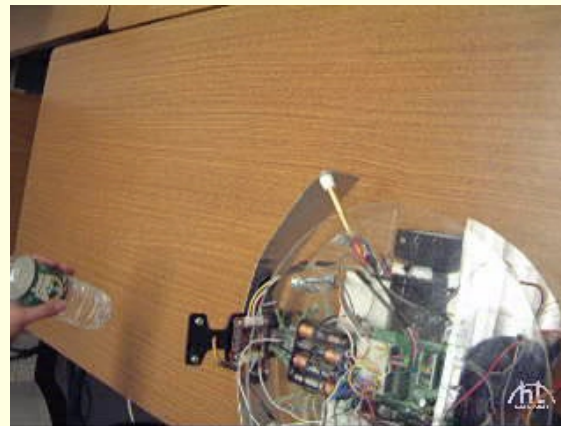
- 1 Parallax Basic Stamp
- 1 Board of Education
- 2 Servo-Motors
- 1 DC Brushless Fan
- 1 Gazbot Infrared Distance Sensor
- 3 Touch Sensor
- 1 Sensirion SHT11 Sensor (Temperature & Humidity Measurement)
- 2 Rubber Rear side wheels and 1 plastic front wheel

Video Clips of the RoboDry

Infrared Sensor



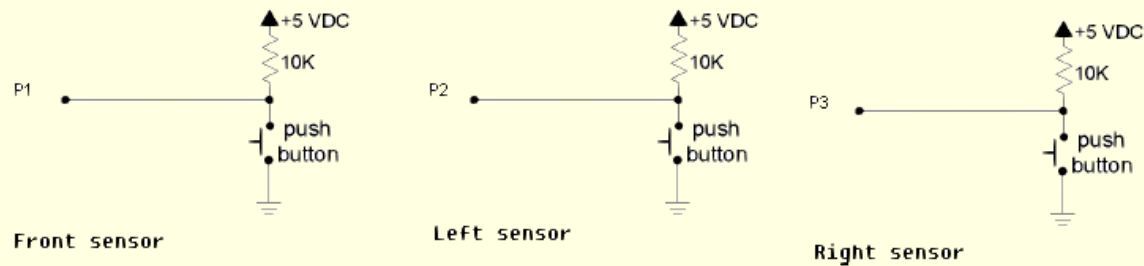
When Infrared Not Detected,
Pressure Sensor used as Backup



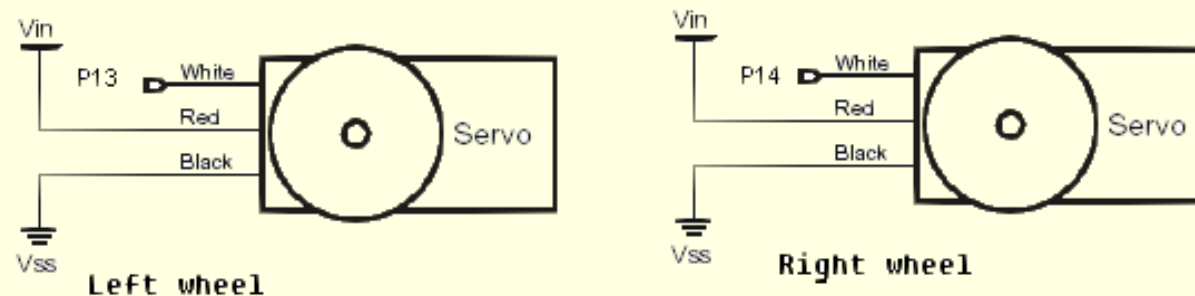
Humidity
Sensor,
Turn on the
Fan

Circuit Diagram

■ Touch Sensors

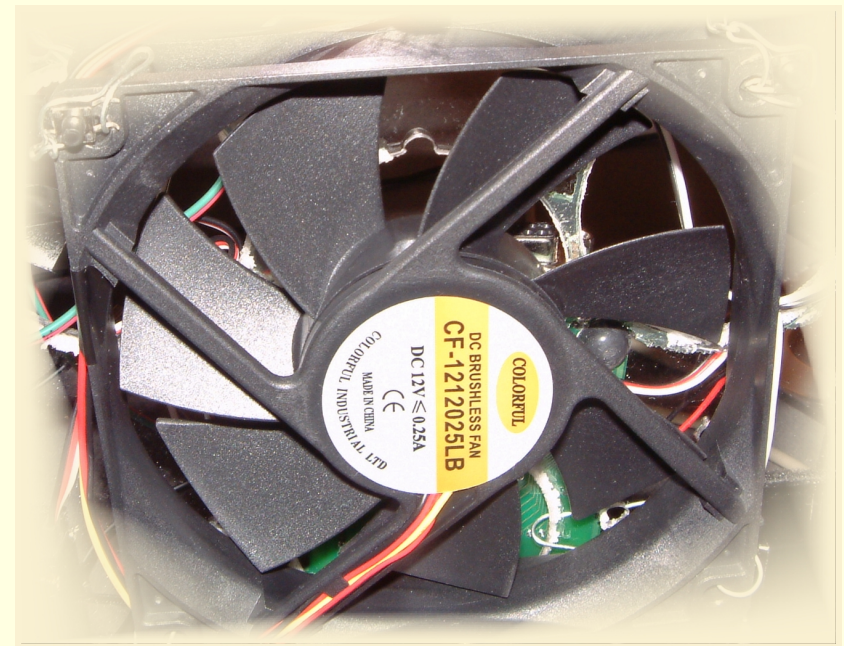
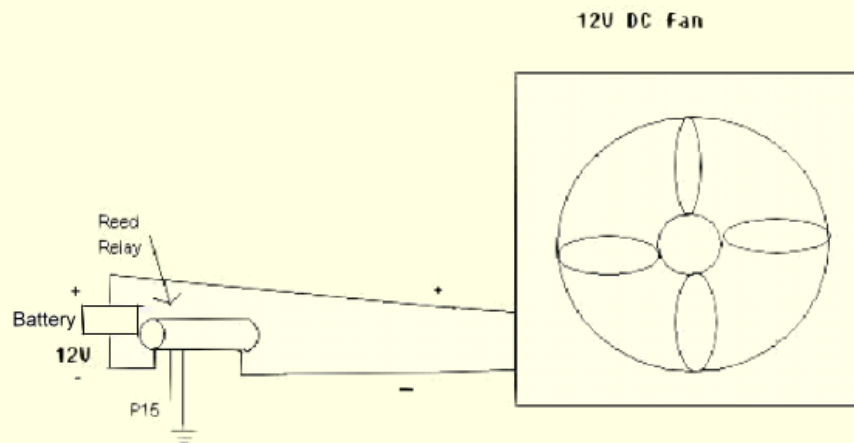


■ Servo-Motors



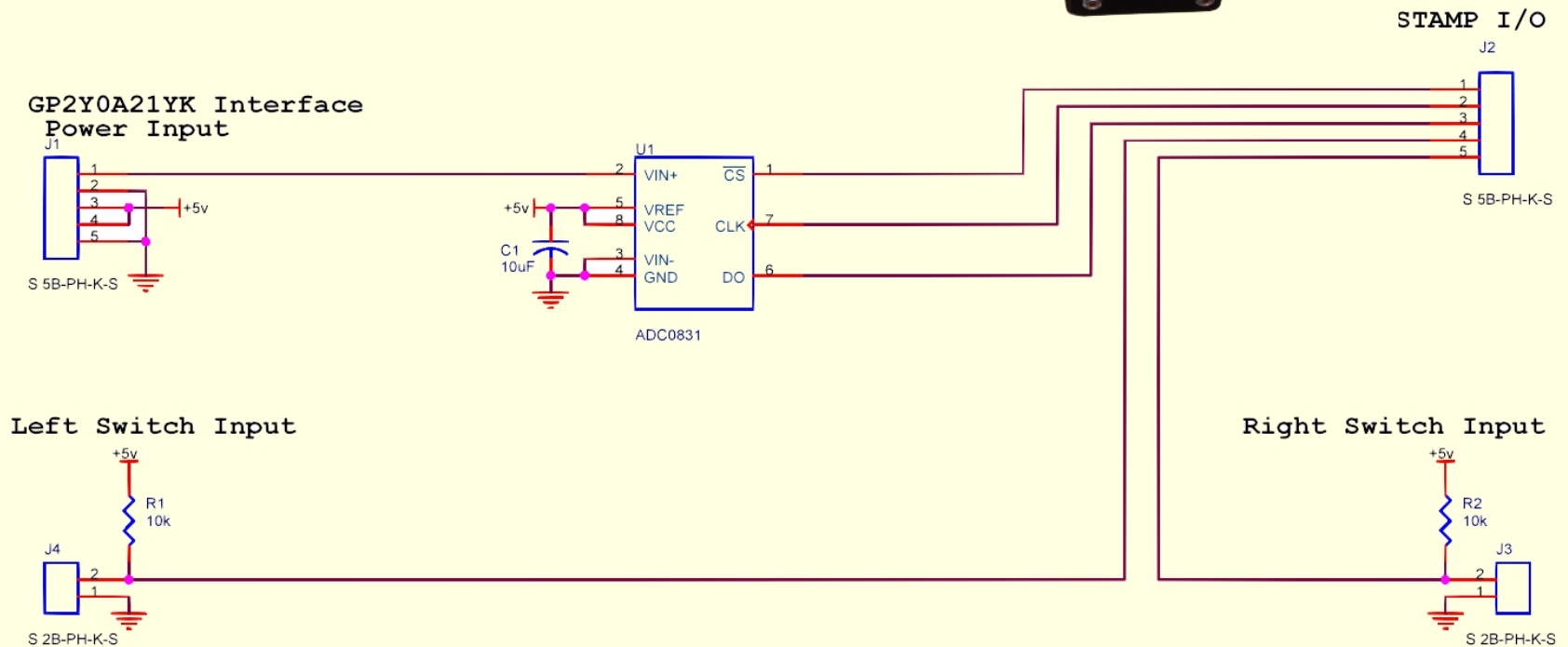
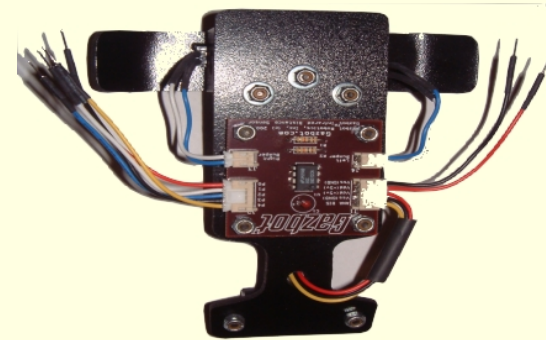
Circuit Diagram

■ 12 volts DC Brushless Fan



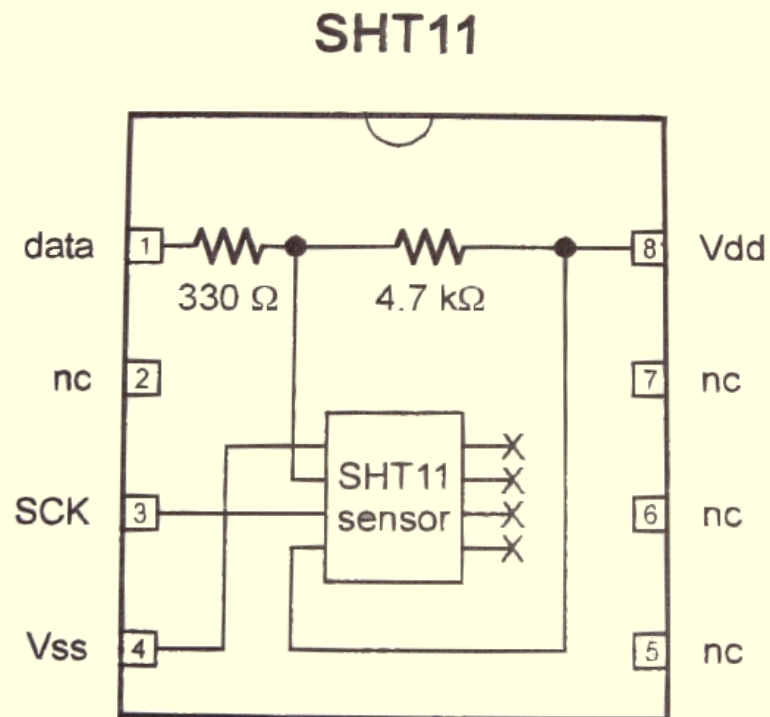
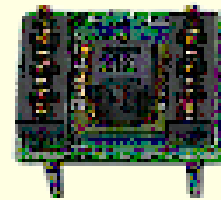
Circuit Diagram

■ Gazbot Infrared Distance Sensor (GIDS)



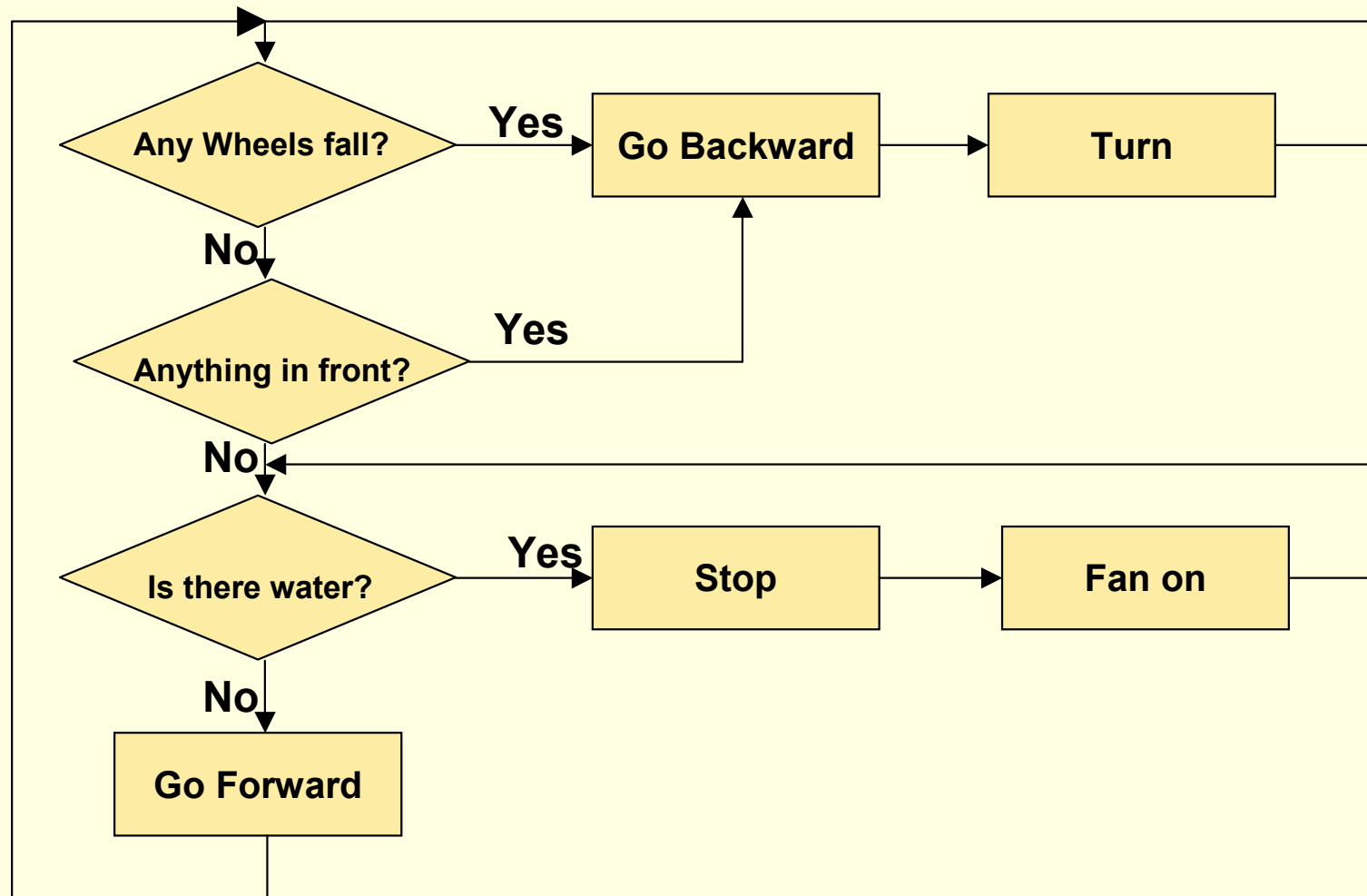
Circuit Diagram

- Sensirion SHT11 Sensor
(Temperature and Humidity Sensor)



Analysis on Programming Codes

■ Flow Chart

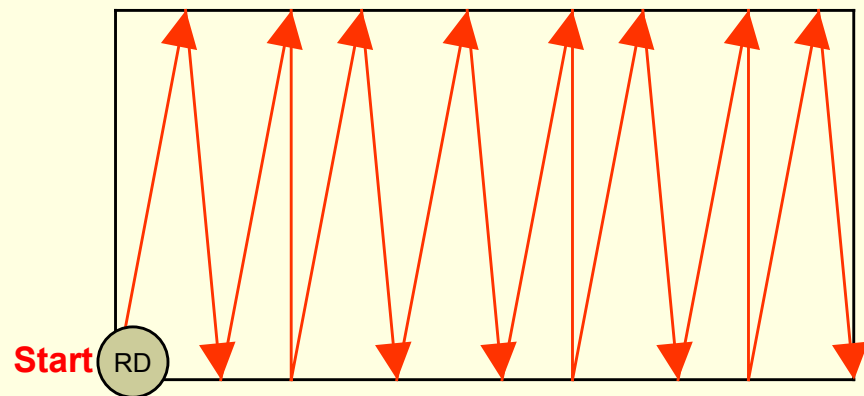


Cost Estimation

2 x Wheels	\$11		PLA ANCHR	\$0.96
Bumper Spring	\$6.44		CAULK	\$3.47
SNP VBAT HLDR 8AA	\$1.79		FAN	\$16.23
4AA HLDR W/SWITCH	\$1.79		4X BODY CIRCLE	\$40
20' 4 CON ICOM WIR	\$3.99		2 SERVO	\$24
PK10 BEAD WIREITE	\$2.79		2X BLACK WHEELS	\$12
16 X 1/4 HEXNUTS	\$1.60		GAZBOT INFRARED DISTANCE SENSOR	\$59.95
PLASTBAGGD	\$4.30		SENSIRION TEMP/HUMIDITY SENSOR	\$29
1 1/2 CRNBRC	\$1.56		FRONT WHEEL	\$5
PLA ANCHR	\$0.96		BASIC STAMP & BOARD OF EDUCATION	\$100
TOTAL \$325.89				

Future Possible Upgrades

- Pre-Set-Mode – designed for real life situations (More than one mode can be selected by Customers)
- Design Indications of the modes. e.g. LEDs
- Automatic Docking and Recharging System
- Additional Path designed for surfaces with less obstacles or open space. e.g.



Closing

Primarily goal of the development of this project

- Easy to Use
- Low Cost

With Unique features of this product:

- Smart-Detection Systems
- Multi-purposes can be replaced and added to this unit (e.g. Fan can be replaced by vacuum cleaner, etc.)

Thank you for your time!
