

Cleaning, Mapping, and Disinfecting Robot Design Proposal

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Outline

1 Introduction

2 Current Design

3 Development Plan

- CAD Modeling
- Electrical and Software Design

Introduction

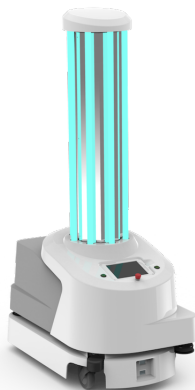


Figure: UVD Robot, source: <http://www.uvd-robots.com/>

Introduction



Figure: Xenex LightStrike Germ-Zapping Robot, source:
<https://www.xenex.com/our-solution/lightstrike/>

Proposed Robot Design

Key Features

- Proposed robot will offer a modular design and open source architecture
- Design will follow plug-and-play architecture – Disassembly will be one of the key features allowing parts to be added or changed
- Software and hardware will follow open-source platform architecture
- Proposed robot design will be cost-effective in terms of executing navigation algorithms

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- Robot will include a disinfectant sprayer in case a room is unsafe to be cleansed with UV light
 - Vacuuming feature will be added to further set the robot apart from its commercial counter parts

Current Design

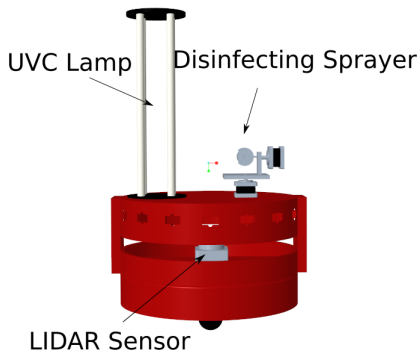
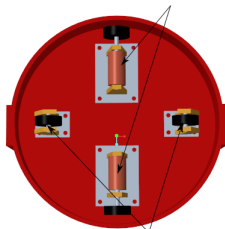


Figure: Side view of the current robot design

Differential Drive Wheels



Caster Wheels

Figure: Bottom view of the current robot design

Development Plan

CAD Modeling

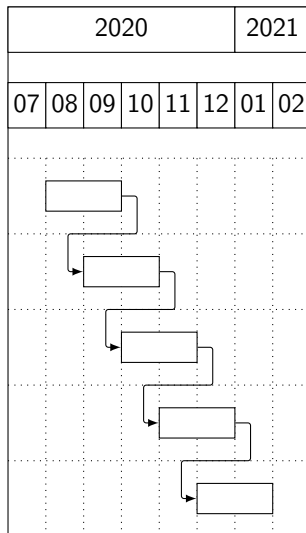
Redesign outer shell of the robot

Design vacuuming system

Create mount points for sensors

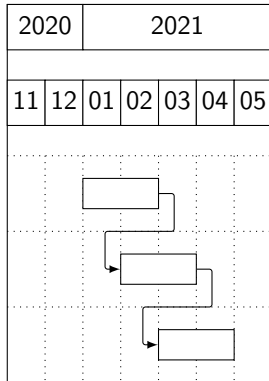
Design disinfectant sprayer mechanism

Design caster and drive wheel mounts



Electrical and Software Design

Develop software and firmware



Any Questions?