ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

THING

RSL
Robotic Systems Lab

Open-source simulation package

Work Package	WP4
Del. Rel. No.	D4.1
Del. No.	D13
Title	Open-source simulation package
Date	20 Mar. 2019

This document describes the release of the open source simulation package to simulate the passive ankle and foot combination.

Link to the git repository: https://bitbucket.org/leggedrobotics/anymal_flat_foot

Dissemination

The release of the software's git repository has been announced on the the ANYmal Research discourse forum.

Software description

The software description, installation, and usage instructions are included in the README of the git repository. The following documents the status at time of release.

anymal_flat_foot

This repository provides the urdf and tooling required to simulate ANYmal with a passive, 2 DOF ankle joint and flat sole. This foot is under development as part of the EU H2020 project THING

⑂ master ⌄ | Filter files |

📁 /

| Name	Size	Last commit	Message
📁 anymal_flat_foot_description		5 days ago	add install to cmakelists
📁 anymal_flat_foot_gazebo_plugin		5 days ago	add install to cmakelists
📁 anymal_flat_foot_tf_publisher		5 days ago	add install to cmakelists
📁 doc		23 hours ago	added image to readme
📄 LICENSE	1.49 KB	5 days ago	LICENSE added
📄 README.md	3.06 KB	20 hours ago	README.md edited online with Bitbucket
📄 jenkins-pipeline	56 B	5 days ago	jenkins-pipeline created online with Bitbucket

README.md

Anymal Flat Foot

Author(s): Ruben Grandia, Giorgio Valsecchi

Summary

This repository provides the urdf and tooling required to simulate ANYmal with a passive, 2 DOF ankle joint and flat sole. This foot is under development as part of the EU H2020 project THING
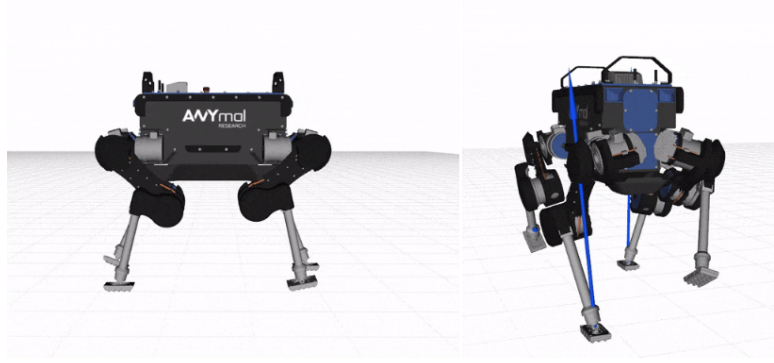
Overview

ANYMAL_FLAT_FOOT_DESCRIPTION

This package contains the foot urdf xacro files and meshes.

ANYMAL_FLAT_FOOT_GAZEBO_PLUGIN

This package contains the plugin loaded by gazebo and attached to each degree of freedom in the ankle. The plugin sets the joint compliance as specified in the urdf. At each gazebo world update, the joint state is published.

ANYMAL_FLAT_FOOT_TF_PUBLISHER

This package published the transforms for the ankle and foot sole such that they can be visualized in Rviz. Joint states are obtained by subscribing to the topic published in the gazebo plugin. The TFs are then published by using robot_state_publisher.

Building

`build running`

This repository has been tested under Ubuntu 18.04 and ROS Melodic. All required dependencies are obtained by installing ROS.

Usage

Your own anymal_NAME repository needs to be adapted to use the flat foot. In particular, the following changes need to be made to the anymal_NAME_description and anymal_NAME_ui packages.

ANYMAL_NAME_DESCRIPTION

- Add runtime dependency on the anymal_flat_foot_description package to the package.xml

```
<exec_depend>anymal_flat_foot_description</exec_depend>
```

- Add the foot name and repository to the top of your anymal_NAME_macro.urdf.

```
<xacro:property name="foot_version"        value="flatfoot_0"/>
<xacro:property name="foot_package"        value="anymal_flat_foot_description"/>
```

- Adapt the call to the anymal foot macro (for LF, RF, LH, RH) to the following:

```
<xacro:anymal_foot leg="LF" mesh_name="package://${foot_package}/urdf/foot/${foot_version}/anymal_foot.dae">
    <properties>
        <xacro:include filename="$(find ${foot_package})/urdf/foot/${foot_version}/anymal_foot_parameters.urdf.xacro"/>
    </properties>
</xacro:anymal_foot>
```

ANYMAL_NAME_UI

- Add runtime dependency on the anymal_flat_foot_tf_publisher package to the package.xml

```
<exec_depend>anymal_flat_foot_tf_publisher</exec_depend>
```

- Launch the tf publisher together with the user interface in ui.launch

```
<include file="$(find anymal_flat_foot_tf_publisher)/launch/tf_publisher.launch" />
```

SWITCHING BETWEEN DEFAULT AND FLAT FEET

Easy switching between the two feet is possible by encapsulating the foot specification in the anymal_NAME_description and the tf publisher launch in anymal_NAME_ui with a flag.