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Analysis Of ROS Bag File

Software Development Project

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Topic Introduction

Analysis Of ROS Bag File

- Subscribe to one/more ROS topics, and store the received message data in a file structure.
- Contents: start, end times, topics, message counts, median frequency, compression statistics.
- **Objective**
 1. Visualize the contents of bag file to draw insights.
 2. Develop an interactive GUI to view the visualization.

High level requirements

Functionality and Usability

- Functionalities:
 1. From metadata of ROS bag file, identify the topics.
 2. Monitor the component activity as a function of time.
 3. Visualize the node behavior, communications between nodes in a Gantt chart.
 4. Visualize by varying the time line -1 day/1 week/1 month..
- Usability
 1. Develop user friendly GUI.
 2. Drop down list to choose for topic and message.
 3. scroll option along the time line axis.

Working Model

Methodology and tools adapted

- The project SHALL use the git distributed revision control system.
- The project SHALL be hosted on github.com
- The project SHALL use the Platform issue tracker.
- The project SHOULD have clearly documented requirements.
- The project SHALL adopt Agile methodology
- Github : <https://github.com/agrija9/Software-Development-Project>

Progress update

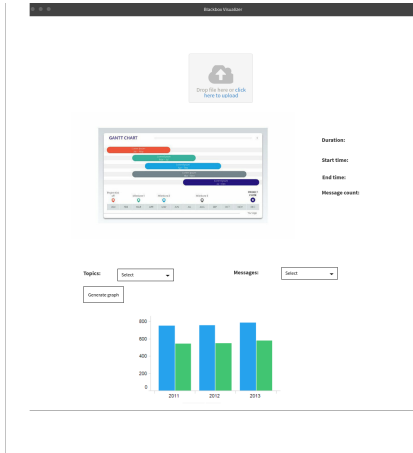
Sprint 0 details

- ***Sprint 0***

1. Requirement analysis documentation
2. Design thinking
3. Proof of concept: Record a simple ROS bag file and analyze the content to visualize the same.
4. Testing
5. Review with stakeholder
6. Prototype creation
7. Sprint review

Prototype

- *Sprint 0*



Sprint-0 Board

Platform issue tracker

- **Approach:** Enable easy tracking and status check of issues per sprint.

The screenshot displays a GitHub Projects board for the repository 'agrijal9 / Software-Development-Project'. The board is organized into three main columns: 'Planning', 'Develop', and 'Done'. Each column contains a list of issues. In the 'Develop' column, issues include '[POC] Rosbag content visualisation' (opened by rkutty1, labeled 'good first issue'), '[POC] Create webpage' (opened by rkutty1, labeled 'good first issue'), and '[POC] Rosbag content extraction' (opened by rkutty1, labeled 'good first issue'). The 'Done' column shows issues like 'Review & comment on prototype image' (opened by rkutty1) and 'Software requirement documentation' (opened by rkutty1, labeled 'documentation'). A sidebar on the right provides details for the selected issue '[POC] Rosbag content extraction', including its description, assignee (divinevaliah), and labels. The board also features a 'Blackbox Visualizer' progress bar and a 'Filter cards' search bar.

Sprint Planning

Sprint 1 (29th Oct- 13th Nov)

- **User stories/Issues**

1. Extract content from the ROS bag files received.
2. Analyze the extracted information, identify relevant topics of interest.
3. Test the usecase.
4. Investigate the suitability of different libraries for visualizations - Python/Seaborn or others.
5. Visualize the extracted data in different ways to find insights.
6. Relate the use of Gantt chart with extracted data.
7. Stakeholder feedback on sprint1 deliverables
8. sprint 1 review

Project Team

Contributors and their roles

- Alan Preciado Grijalva - Backend developer
- Devaiah Ulliyada Arun - Backend developer
- Ragith Ayyappan Kutty - Frontend developer
- Shravanthi Arvind Patil - Frontend developer