Memo – First Deliverable Test Report

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**Team:** 15

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**Subject:** First Deliverable Testing Report

# Introduction

Our first test was to verify that the subcomponents of our project could be integrated to accomplish most of the core features of our project: race detection, video storage, and metadata recording. We demonstrated the early developments of the event detectors by detecting the start and end of a race, the functionality of the storage component to store race videos and track metadata about them, and the ability of the core API to orchestrate the actions of these systems at the behest of a user.

# Equipment and Setup

The equipment set-up for this demo was outlined in our test plan. All of the components of the project were run on a Linux VM on a laptop. These are our core server, our processing server, and our storage server. In addition, a web server was used to emulate the future use of cloud storage for the videos. A web browser outside of the VM was used to upload the video to the system.

# Measurements Taken

We did not have to do an over-whelming amount of measurements for our first test and most of our requirements are boolean. The specific measurements taken were the race start and end times across multiple races, and the number of races played.

The other criteria measured were:

* User is able to upload a video
* Video is stored and recorded in a database
* Races are detected and recorded in a database
* Individual race videos are created
* User can download each race video

To verify that the detected races are correct, the start and duration were measured by hand before testing. Because there are several seconds of time that can be considered the race start and end, and human measurement of when precisely the race begins or ends is difficult, computed times within 5 seconds of the manually measured times are considered valid.

The criteria for these cases are:

* Race start time is within 5 seconds of manually observed start
* Race duration is within 5 seconds of manually observed duration
* Number of races detected matches manually counted number

The test is considered successful if all of these criteria are true.

# Data and Analysis

This table details the events that are supposed to take place throughout the course of the test, what the anticipated result is, and what the actual result was.

|  |  |  |
| --- | --- | --- |
| Criteria | Expected | Observed |
| User is able to upload a video | Yes | **Yes** |
| Video is stored and recorded in a database | Yes | **Yes** |
| Races are detected and recorded in a database | Yes | **Yes** |
| Individual race videos are created | Yes | **Yes** |
| User can download each race video | Yes | **Yes** |
| Number of races detected | 5 | **5** |

To determine whether or not the race detection module was functioning correctly, the following data was collected. All numbers reported are in seconds.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Race | Observed Start | Observed Duration | Computed Start | | Computed Duration |
| 1 | 17 | 135 | **16** | **138** | |
| 2 | 157 | 141 | **155** | **145** | |
| 3 | 304 | 132 | **302** | **136** | |
| 4 | 440 | 116 | **438** | **121** | |
| 5 | 562 | 119 | **559** | **124** | |

To judge the success of the race detection module, the absolute differences between the observed and computed times are considered. Again, differences of up to 5 seconds are permitted.

|  |  |  |  |
| --- | --- | --- | --- |
| Race | Start Difference | Duration Difference | Acceptable |
| 1 | 1 | 3 | **Yes** |
| 2 | 2 | 4 | **Yes** |
| 3 | 2 | 4 | **Yes** |
| 4 | 2 | 5 | **Yes** |
| 5 | 3 | 5 | **Yes** |

# Conclusion

From the data above, we can conclude that the test was a success. All testing criteria were met, and race detection was quite accurate.

Going forward it will be easy to add more features and detectors to our project because we have already accomplished integration of all core components. Further interactions between the modules can be added and tested easily, as the development of event storage and querying begins and as the user interface and core API become more fleshed out.

A great base has also been established for further event detection. Because race boundaries are just a special case of event, adding more detectors will be faster since we have a starting point for developing them.