ZOOSPHERE

DEVELOPMENT OF A SOFTWARE FOR AUTOMATED SPHERIC IMAGE CAPTURING AND INTERACTIVE 3D VISUALIZATION OF BIOLOGICAL COLLECTION OBJECTS
LOAD DEMO: http://zoosphere.biodiv.naturkundemuseum-berlin.de
IMAGE CAPTURING
Digitization Tool

Object
Stepper Motor
Stepper Motor
IMAGE CAPTURING
HARDWARE COMPONENTS

2 x Trinamic Stepper Motor
Cognisys StackShot
Canon EOS 6D
Flashlight Setup
C++ MFC application
Connects to hardware components via USB
Use for Stackshot calibration
Handles capturing algorithm
Saves images to disk as RAW and JPG
Displays camera images
 Writes property files for sequence archive

Best to connect to drivers and APIs
MFC for “easy” interface design
Number of pictures: 900 to 1800
Time for one picture: 2.5 sec per stacking image
Resolution of the pictures: 24 MegaPixel
Degree per rotation step: 3° to 6°
Number of angles: 10 to 20
Number of stacking positions: 10 to 20

→ About 24,000 to 48,000 pictures
→ About 18 to 36 hours
CONCEPT
WORKFLOW

• Calibration

Application for Hardware Control

Stacking Software “Helicon Remote”

Photoshop

• Start Stacking
• Image Editing

• Quality Check
• Release

Desktop

Mobile

Web

REST Service
SPECIMEN WEB HUB
DETAILS

- Drupal 8
- REST service (provides JSON)
- Contains views and content types for sequences
- Dedicated Collection Manager Role
- Lightweight & Easy to maintain
- REST included in Drupal 8 core as a module
# ZooSphere Specimen Web Hub

<table>
<thead>
<tr>
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<th>Sequence Horizontal Perspectives</th>
<th>Sequence Vertical Perspectives</th>
<th>Sequence Archive</th>
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**VISUALIZATION SOFTWARE**

**DETAILS**

<table>
<thead>
<tr>
<th>Feature</th>
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<tr>
<td>Java Application</td>
</tr>
<tr>
<td>Eclipse 4 RCP</td>
</tr>
<tr>
<td>Version control via git</td>
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<tr>
<td>~15 packages</td>
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<tr>
<td>Touch monitor compatible</td>
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<tr>
<td>Platform independent</td>
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<tr>
<td>Better code structure</td>
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<tr>
<td>Extension points for plug-in development</td>
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VISUALIZATION

A demonstration
SPECIMEN WEB HUB
CONNECT YOURSELF (OR YOUR INSTITUTION)

1. Register with Specimen Web Hub
2. Account confirmed by MfN Team
3. Upload .zip or host yourself
4. Submit metadata via input form

Your sequence is connected to all devices immediately
Thank you for your attention
WWW.ZOOSPHERE.NET