Khronos Group

Request for Proposals

glTF on iOS

July 2023

Notice

Trademark

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1. Background

Today glTF open source support extends to numerous platforms, from web to virtual reality. However, iOS still lacks an open source glTF viewer, a common discussion among both the glTF and iOS communities.

glTF on iOS will fill this gap with a glTF application analogous to iOS's QuickLook feature, shown below. QuickLook also contains an Augmented Reality experience, which is also in scope of this project.

2. Methodology

Khronos has a fixed budget for this project with payments made monthly after approval of Tooling Technical SubGroup (TSG).

This RFP is being circulated publicly. Khronos will accept bids from any place or organization as long as Khronos can complete a contract with that organization from that location.

Khronos will establish a project email list for communications regarding this project that any interested Khronos member may join. A short weekly status and progress report should be prepared for the weekly Tooling TSG meetings.

3. Scope

This project is to build an app that runs on iOS. The app needs to meet the Requirements and be ready for submission to Apple's App Store. There may be a second phase to this effort. That will be determined after this work is complete based on community feedback and other sources. The second phase and collecting community feedback is not within scope of this effort.

The source code and documentation will be released as open source material. It is not a requirement to use existing open-source software to build this app; however, it is probably necessary to do so to meet the budget limitations.

The detailed requirements are below. This section summarizes the requirements and is provided as convenience to bidders. Every effort has been made to correctly and fully summarize the requirements; however, in case of disagreement the Requirements section contains the have priority.

3.1 Viewing Modes (Informative)

The viewer must support two viewing modes, a normal object viewer and an Augmented Reality (AR) mode, where the model can be initially placed on horizontal and/or vertical planes. After initial placement, the object should be moveable throughout the scene. AR occlusion, where virtual objects are occluded by real world objects, is not in scope of phase one.

3.2 Minimum Features (Informative)

At a minimum, the application must support the glTF features below as part of phase one.

1. glTF, glTF embedded, and glb asset types.
2. The standard PBR material model (material extensions are excluded).
3. Mesh skinning and morph targets.
4. Standard glTF animations (animation pointers are excluded).
5. Two texture coordinates and two texture transforms (KHR_texture_transform).

3.3 Optional Features (Informative)

Although not required for phase one, the following glTF features are nice to have, ordered by preference.

1. iOS App Clip, which imposes size limits on the application's binary.
2. Draco mesh compression (KHR_draco_mesh_compression).
3. Basis Universal texture compression (KHR_texture_basisu)
4. PBR material extensions.

4. Deliverables

4.1 Introduction

This section lists out all required deliverables within the time frame of the contract for the agreed-upon price. The contract shall not be considered finished and final payment shall not be made until all of the deliverable requirements have been satisfied.

4.2 Final Deliverables

The following items must be delivered by the end of the contract
1. All items in 4.3 Interim Deliverables
2. Source code that is releasable with an Apache 2.0 license or equivalent. Other licenses may be acceptable and may be proposed. Anything not explicitly indicated will assumed to be Apache 2.0
3. iOS compiled binaries that can run on the latest version of iOS at the time of the RFP release.

4. Embedded documentation consistent with the style and use of other iOS apps
5. A pull request against a Khronos identified GitHub repo for all material related to the app including, but not limited to, source code, documentation, and build instructions.
6. Draft blog post describing the app and how it can be used.
7. Final presentation to 3D Formats Working Group showing all features of the app on an iOS device.
8. Application uploaded to the 3D Formats Working Group's App Store Connect account and submitted for App Store review.

4.3 Interim Deliverables

The following must be provided during the contract
1. Preliminary Design (PD) of the user interface showing all features and major steps in the use of the app. The design needs to be presented to the Tooling TSG or a mutually agreed-upon date & time.
2. Two interim status update presentations to Tooling TSG. One is the PD (above). The second one happens about ½-way between the PD and Work Completion and should include a TestFlight build available for download.

5. Schedule and Budget

Khronos estimates that this is a two-month project with a budget limit of USD $20,000. Bidders may propose more or less than this amount (time and dollars). If the proposal is for more (either time or dollars), then the bidder needs to justify the additional time or money AND describe what could be delivered for the RFP amount of $20,000.

This project will have two payment cycles, one ½-way through and one at the end with payment made after completion and acceptance of the deliverables for that period.

6. Requirements (Normative)

The Requirements for the app are as follows

1. The application's minimum deployment target must be iOS 16.
2. The application's size must be less than 200MB.
3. The application must have two viewing modes, an object mode and augmented reality (AR) mode.
   a. The object mode must have camera controls to view a single asset from different angles and distances.
   b. The AR mode must allow a single asset to be placed on real world horizontal and vertical planar surfaces. Once placed, the user must be able to move the asset between surfaces.

4. The application must ship with at least two glTF sample models accessible when the iOS device is offline. The models may be from existing repositories or contractor generated. Existing models must meet license requirements.
5. The application must allow glTF assets to be imported from the iOS Files application.
6. Rendered assets must be lit with an environment map supplied by Khronos..
7. The application must support all core glTF 2.0 features and file types (glTF, glTF embedded, glb), with the following exceptions.
    a. Sparse accessors
    b. 8-bit indices
    c. Point, line, line loop, and line strip mesh primitive modes
8. Before the end of the contract, all provided content must be owned by Khronos Group or licensed in such a manner that it can be used without penalty or question. Licenses that meet those terms are CC-BY, CC-BY-ND, CC-BY-SA. Other licenses may meet this requirement.

7. Selection Process

Khronos shall designate a Khronos RFP Manager and will use an RFP email list (gltf-ios-rfp@lists.khronos.org) that can be used to contact the RFP Manager and all other Khronos members involved in the bid selection process. No member making a bid shall be on the RFP list. Any organization considering making a bid in response to the RFP should notify the RFP list as soon as possible. Any potential bidder may request additional information and submit questions directly to the RFP manager or on the RFP email list. Any additional Khronos information and RFP clarifications will be distributed equally to all potential bidders.

All bidders should provide the following information in the format of their choice:
● Proposed schedule, assuming work starts on **18 September 2023**
● Confirmation that if your bid is accepted, you are willing to work under the terms of the Khronos Contractor Agreement[1].
● Any issues or risk factors that they wish to highlight.
● Preliminary static (image) mock-ups of the UI screens
● Supporting materials, including background materials about their company, highlighting experience and expertise relevant to this project.

RFP responses are requested by **6AM PDT on 25 August 2023** and should be sent to the RFP list. Bidders may update their bid as they wish before the submission deadline. In exceptional circumstances a requested submission deadline extension may be issued to all bidders at Khronos' discretion. All bids must be good until **22 September 2023**.

Khronos will evaluate all bids and select the bid based on proposed features, budget, schedule, relevant experience, and expertise.

Khronos expects to announce the selected bid within two weeks after the submission deadline and will immediately notify all bidders and enter into contract negotiations with the selected bidder to finalize deliverables and payment schedule. Khronos will immediately notify all other bidders once contract negotiations are complete. In the case contractual agreement cannot be reached, Khronos may select an alternative bidder and re-enter negotiations.

Work can start immediately when the contract is negotiated and executed by both parties.

8. Contractor's Agreement

The selected contractor will be required to execute the Khronos Contractors Agreement[1] with Milestones and Costs entered into Exhibit B and Contractor Disclosures entered into Exhibit C.

No work shall begin, and Khronos shall be liable for no costs or expenses, until the selected contractor is in receipt of a mutually executed Contractor's Agreement.

It is important that contractors understand that, under the terms of the Contractors Agreement, Khronos will assess progress on a regular basis and reserves the right to terminate or renegotiate the contract in the event of insufficient progress or other issues.

9. Project Continuation

Khronos might consider possible extensions and follow-ons to this project. Successful completion of this project by the contract enables bidding or assignment on any future follow-on work.

10. References

[1] Khronos Contractors Agreement - https://members.khronos.org/document/dl/30507