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Erasmus+ Programme  
of the European Union



# USER MANUAL

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*“Augmented Reality Outdoor Mobile  
Application”*

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## **List of Abbreviations**

<b>Abbreviation</b>	<b>Definition</b>
API	Application Programming Interface
APK	Android Package Kit
AR	Augmented Reality
GPS	Global Positioning System
MB	Megabytes
URL	Uniform Resource Locator

## **1.0 General Information**

### **1.1 Organization of the Manual**

The user manual consists of the following four sections:

1. General information
2. System Summary
3. How to download the mobile application
4. Using the Mobile Application

**General Information** section explains in general terms, the mobile application overview, and the sections of the user manual. This section provides a description of the purpose and scope of the User Manual and the problems that will be solved by interacting with this.

**System Summary** section explains about the hardware and software requirements for accessing the mobile application and user access levels. This section provides an overview of the system's capabilities, functions, and operation, including the specific high-level functions performed by the system.

**How to Download the Mobile Application** section explains the options available to download/access the mobile application.

**Using the Mobile Application** section provides a detailed description of the mobile application's functionalities. This section describes each specific function of the system.

### **1.2 Mobile Application Overview**

The Augmented Reality Outdoor Mobile Application Augmented Reality (AR) app has been developed for the CREAM's project and is currently in its low fidelity edition. Its objective is to augment the art students' artworks and galleries through the usage of a phone, enriching the outdoor exhibition experience.

The manual presents this application edition's requirements for installation and addresses all the possible obstacles and errors which might appear throughout the installation process and application's usage. By reading this manual, the user will be able to operate the application fully and liberally.

## 2.0 System Summary

This section explains about the hardware and software requirements for accessing application/software and user access levels.

### 2.1 Hardware and Software Requirements

This mobile application is developed for Android mobile phones only. The following prerequisites must be fulfilled to ensure its functionality:

Hardware:

- Functioning GPS receiver.
- Functioning Wi-Fi antenna.
- Mobile battery in good condition.
- Minimum 10MBs of free storage space.

Software:

- Minimum Application Programming Interface (API) Level: 26 (Oreo 8.1 Android Platform Version)
- GPS service enabled.
- Internet connectivity.
- An updated internet browser.
- Google Maps installed and updated.

### 2.2 User Access Levels

The mobile application does not require any registration. Guest mode is the application's default mode of operation for the low fidelity version.

### 2.3 Privacy & Terms

No personal information is collected, and no registration/authentication is required for the AR mobile application usage. The application will require the user's location for its navigation process when Google Maps operates. This information is managed and processed by Google and is subject to its privacy policy. No identifying data is stored in the project's servers.

### 3.0 How to Download/Access the Mobile Application

This section presents the complete steps required for the installation of the AR mobile app. The prepared screenshots were taken during the installation procedure of the application in a Galaxy A32 5G phone device. It has an Android version of 13 installed, a 6.5 inches screen, internet access via Wi-Fi, its default browser is Chrome, GPS location is turned on and battery level above 60%.

#### 3.1 Download Process

The mobile app is available for downloading at url: <https://creams-project.eu/creams-ar-outdoor.apk> (Figure 1). By visiting this URL, the following screens will appear, indicating that the Android Package (APK) file is downloading and prompting you to open it for installation (Figure 2).



Figure 1 Screenshot from Chrome

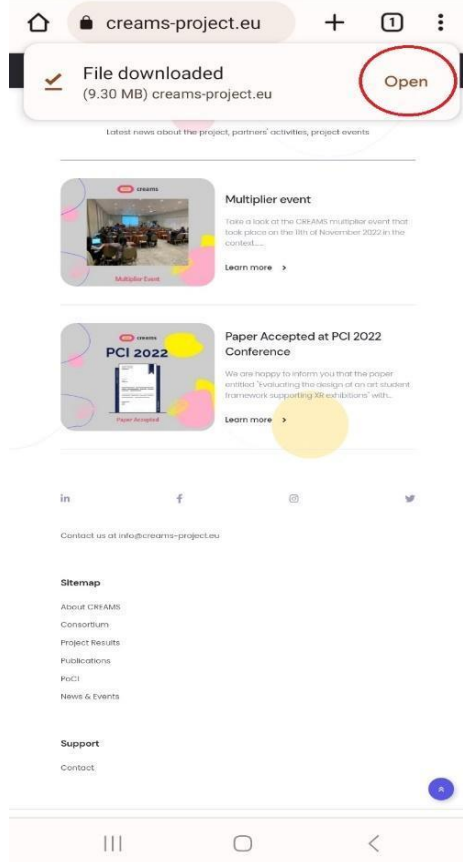


Figure 2 Screenshot from Chrome (Project's Website)

For facilitation, the APK file can also be found in your local storage folder (Figure 3).

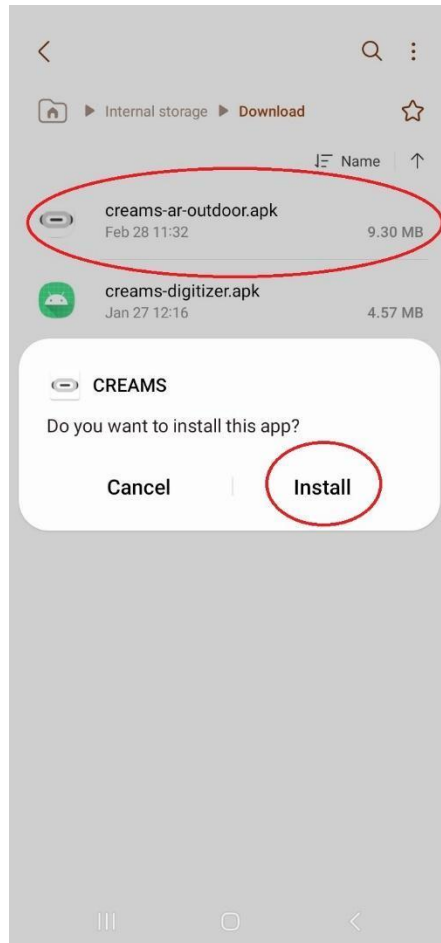


Figure 3 Android Package Installer

### 3.2 Installation Process

By opening the APK file, the system will either prompt you to install the CREAMS application (if you have already given permission to Chrome to install unknown apps from this source), or guide you to Settings, asking you to give permission to Chrome to install unknown applications. Make sure the circled side bar is in the correct position (Figure 4). You can always revert this option by turning the same side bar on the opposite direction in the Settings (Figure 5).



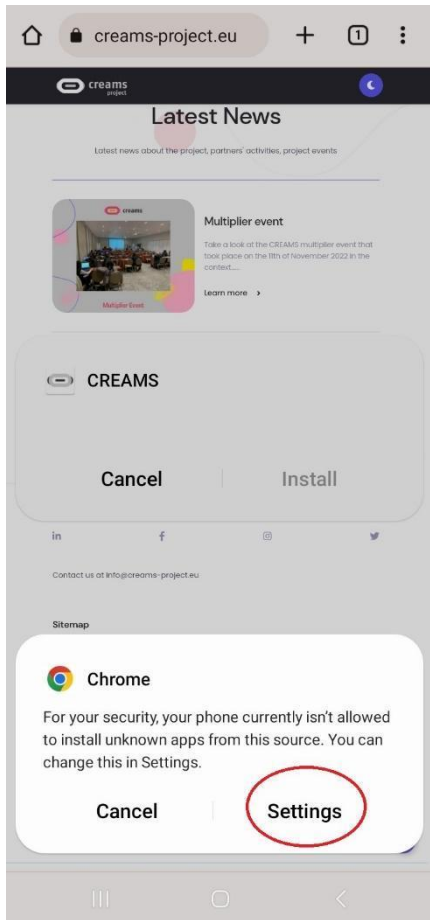


Figure 4 Chrome's Suggestion to Change Permission

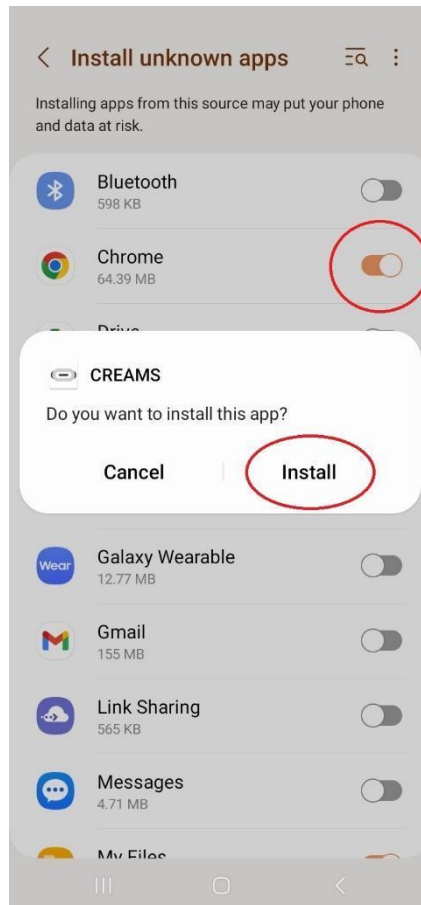


Figure 5 Package Installer Prompting Installation

Once the installation is complete, the screen in Figure 6 will appear, and the homepage of the CREAM's AR mobile application (Figure 7) will emerge.

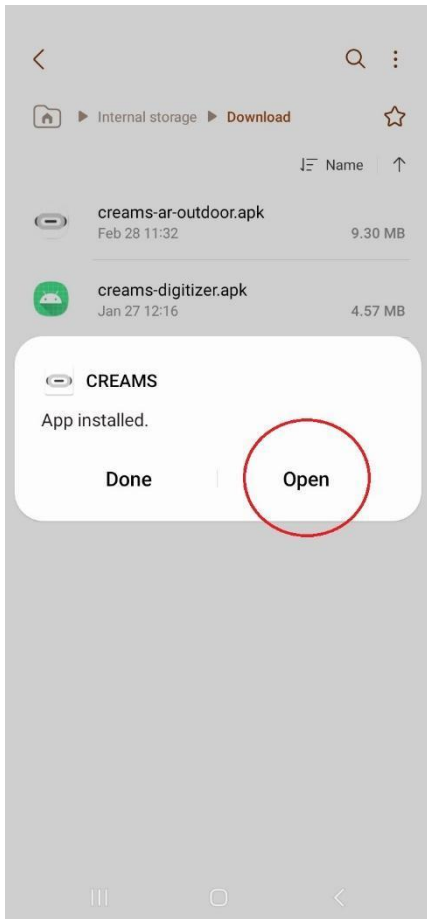


Figure 6 Final Package Installer Screen

# Welcome to CREAMS

Galleries Outdoor

*Display the closest gallery*

or

*Display the closest artwork*

or

Galleries near you

All>



*Faces of the World*  
by  
Michail Panagiotis Bofos

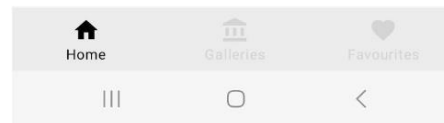


Figure 7 Application's Home Screen

## 4.0 Features/Functionalities (Low Fidelity Tool)

### 4.1 Home Tab

The application's homepage includes:

- Two buttons (circled in Figure 8).
- A recycler view.
- A bottom navigation menu.

The bottom navigation menu is situated at the bottom of the phone's screen. The user can navigate from the Home tab to the Galleries tab and the Favourites tab. The later has not been implemented for the low fidelity version but is a placeholder for the future update.

The recycler view is situated above the bottom navigation menu. It is a scrollable menu which displays all the published galleries. It rotates by swiping a finger towards the left. The final feature in the home tab is the two black buttons. When pressed, the buttons will prompt the user to allow the CREAMS application to access the device's location. The user should select "While using the app" (Figure 9).

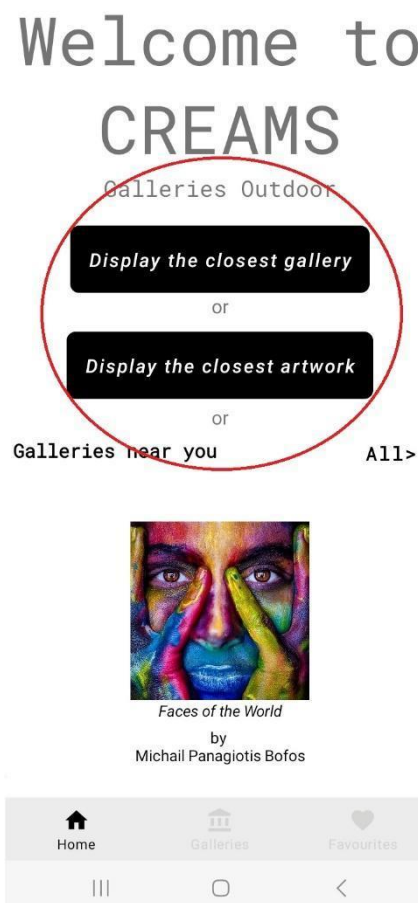


Figure 8 Closest Gallery and Closest Artwork in Home Screen

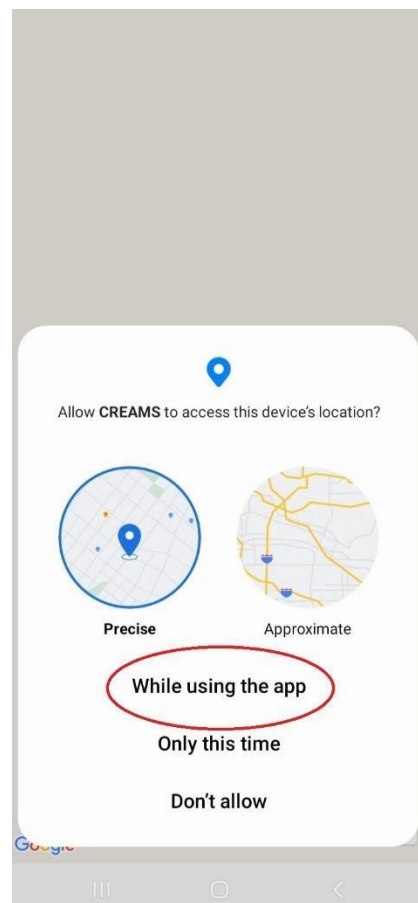


Figure 9 Device's Location Access Pop Up

After allowing the application to access the device's location, Google Map opens, zoomed in at the user's position (Figure 10). The closest gallery/artwork will be indicated with a red pin. By clicking

on the pin, a thumbnail, the title, and the owner's name appear in an info window (Figure 11).

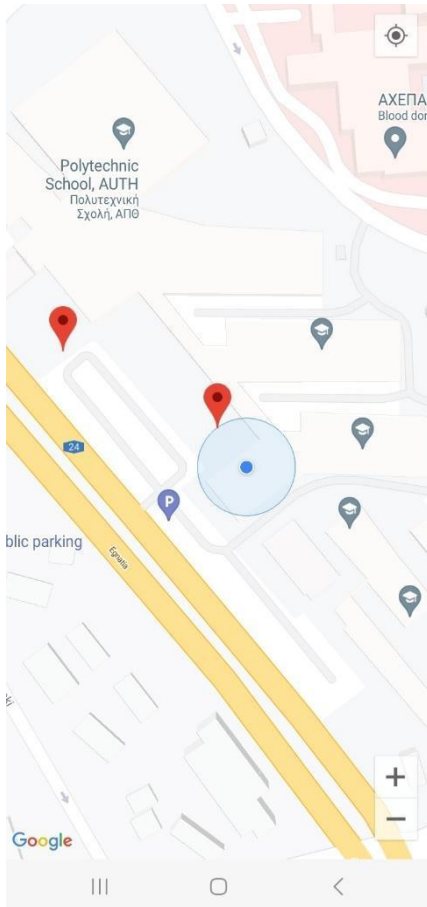


Figure 10 User's Current Position with Closest Artwork/Gallery in Red Pins

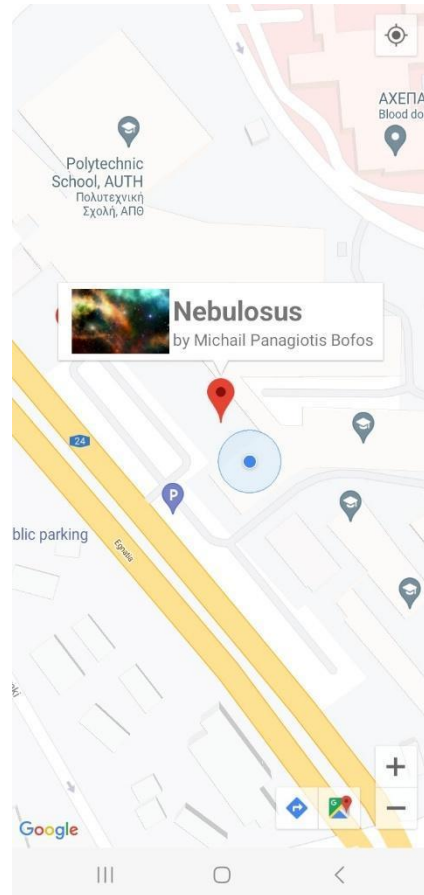


Figure 11 Info Window with Artwork's details

The user can be navigated towards the closest artwork by pressing the navigation icon on the bottom right screen (circled in Figure 12). This action will open Google's Map directions where you can decide on your conveyance towards the selected artwork (Figure 13).

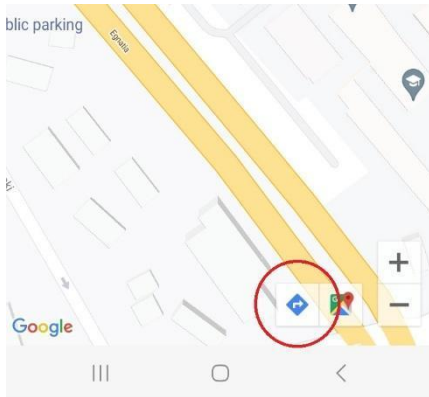


Figure 12 Navigation Icon

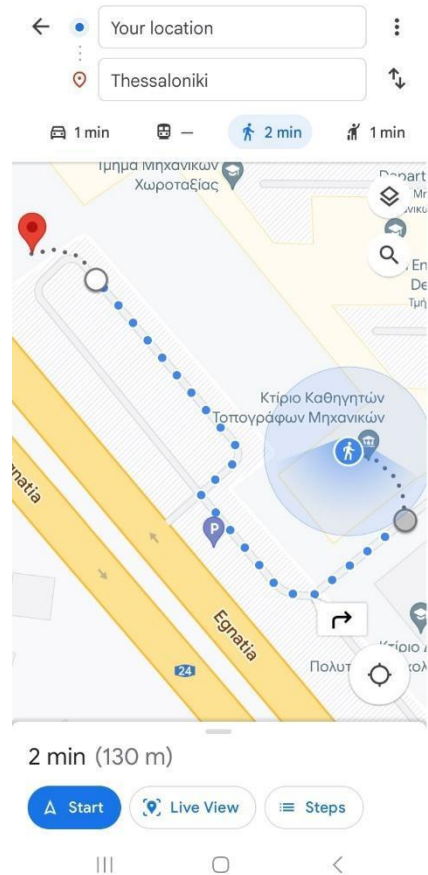


Figure 13 Directions towards the Artwork

## 4.2 Galleries Tab

The application's last created function is the Galleries tab (Figure 14). This tab includes a vertical recycler view (list) which displays all the outdoor galleries. By pressing on one, a map is popping up, displaying the artworks and their intended locations (Figure 15). The red pins are clickable and when triggered, they display an info window with the artwork's details.

# Galleries Outdoor Galleries



Figure 14 Galleries' Tab

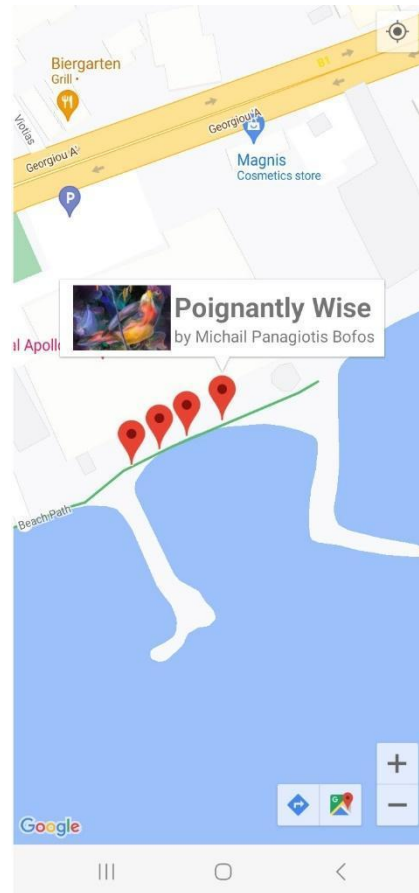


Figure 15 Artworks from Chosen Gallery displayed in the Map