

# Making an Augmented Reality Book















## WHAT WILL BE NEEDED

You will be needing an android phone with at least android 8.0.

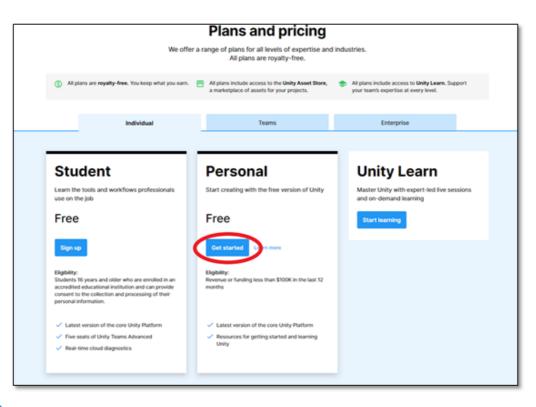
You will also need the software Unity to make this application. If you dont have it yet there will be instructions on how to do so. This project wil be using Unity 2020.3.38f1 (LTS) or earlier versions of Unity 2020.3.XXf1.

You will need to install Java JDK and JRE. There will be steps for the installation.

This project will be using Vuforia 10.8. There will be steps on how to install it later on.

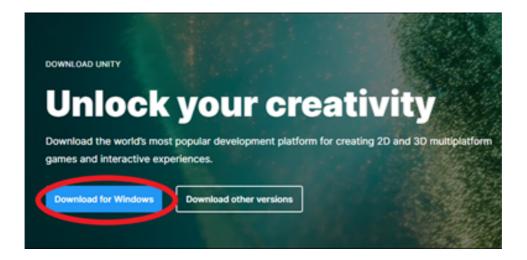
# Downloading unity and registering

**Step 1**: Go to the following URL: https://store.unity.com/front-page? check\_logged\_in=1#plans-individual, and click on the button 'Get started'.





**Step 2**: Click on the button "Download for Windows" and download the installation file. Once the download is finished, double click on the installation file to begin with the installation process.



**Step 3**: To begin creating your project, open the Unity Hub, you can find it by typing "Unity Hub" on the search bar next to the Windows tab on the left inferior corner of the screen. Then, Click on "Unity Hub - Application" once it appears on the search results.

Onity Hub App	<b>\$</b>
Apps 4 Unity	Unity Hub App
<ul> <li>Report a Problem with Unity</li> <li>Report a Problem with Unity</li> </ul>	C Open
Search the web O Unity - See web results	Run as administrator     Open file location
Test.unitypackage	-C⊐ Pin to Start -C⊐ Pin to taskbar i Uninstall
<ul> <li>Unity Documentation</li> <li>Unity Documentation</li> </ul>	
Websites Unity Release Notes	





**Step 4**: This is the first screen you will see after epening "Unity Hub", the first thing you need to do is to create a new Unity account, to do so click on the button on the upper right corner of the screen and click on "Sign-in".

Unity Hub 3.2.0			- 0 X
\$	Projects		Open 🔹 New project
Projects		٩	
Installs	* NAME		EDITOR VERSION
Learn Community	* AR-Gramata D:\Unity Projects\AR-Gramata		
	* Test2 D:/Unity Projects\Test2		
	+ AR_Coloring D:/Unity Projects/AR_Coloring		
	+ PC-VR D:\Unity Projects\PC-VR		
	* AR-Book D:\Unity Projects\AR-Book		
Downloads     ■	+ Unity D3/Unity		
	Shooter Uni	2	0000.0.000 0

**Step 5**: As you might not have a Unity account yet, you should create one first. To do so, click on the button "create one".

Email	
Email	
Password	
<ul> <li>Remember me</li> </ul>	Forgot your password? Help
Sign in	
	OR





**Step 6: F**ill out all the required fields, don't forget to accept Unity terms of service, privacy policy and marketing activities. When finished, click the "Create Unity ID" button.

Create a Unity ID
If you already have a Unity ID, please sign in here
Email
Username
I have read and agree to the Unity Terms of Service(required).
Information](required).
agree to have Marketing Activities cirected to me by and receive marketing and promotional information from Unity, including via email and social media(optional).
Create Unity ID
OR

**Step 7**: We are almost done, you just have to confirm your email to validate your new Unity account. Remember, it is absolutely free. You will receive an email similar to the one in the image below, just make sure to click on the "link to confirm email" button and that's it, your new Unity account will be ready to use.



**Step 8**: Now your account has been created and you're ready to install Unity.





# **Installing Unity**

**Step 9**: Click on "installs", after that click on "Install Editor". The first part of the installation process involves downloading a version of Unity, during this tutorial, it is recommended to install the Unity 2020.3.37f1 (LTS) version, choose this option and then click on "Next"

Unity	Hub 3.2.0		>
W	) - a	Installs	Locate Install Editor
•	Projects	All Official releases Pre-releases	Q Search
* *	Learn Community	2019.4.18f1 ETS D:JUnity/2019.4.18f1/Editor/Unity.exe     Android Windows	¢
*			

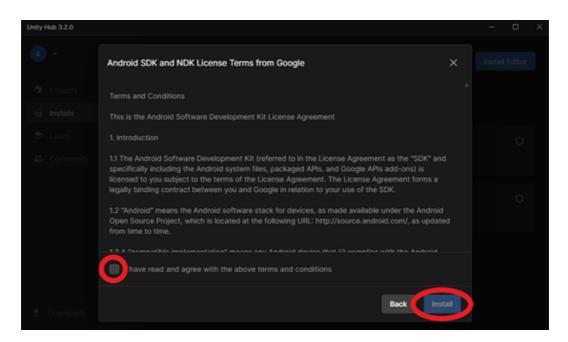
**Step 10**: You must choose which modules you will add to your Unity 2020.3.38f1 or Unity 2020.3.37f1 installation. If there is a newer version of the 2020.3.3Xf1 use that one. In this case make sure you select "Microsoft Visual Studio Community 2019 and Android Build Support, OpenJDK and Android SDK & NDK Tools. Click on the "Continue" button.

Unity Hub 3.2.0			- 0 ×
	Install Unity Editor	×	
	Official releases Pre-releases Archive		
	LONG TERM SUPPORT (LTS)		
	2021.3.8f1 113		
	Recommended version	Install	
	2020.3.3811 LTS	Install	
	😨 2019.4.4011 🚥	Install	
	OTHER VERSIONS		
	•	_	
	Beta program webpage		



Unity Hub 3.2.0				- 🗆 X
	Install Unity 2020.3.37f1 IIIS		×	
Projects				
🔒 Installs	Add modules	Required: 10.48	GB Available: 3.06 TB	
🗢 Learn				
🚓 Community			1.24 GB	
	Android Build Support	355.39 MB	1.79 GB	
	🕒 🗹 OpenJDK	145.91 MB	67.2 MB	
	- Z Android SDK & NDK Tools	1.02 GB	2.89 GB	
	iOS Build Support	377.91 MB	1.73 GB	
	tvOS Build Support	374.78 MB	1.72 GB	
		Ba	ck Continue	
± Downloads				

**Step 11**: You have to agree with Android's terms and conditions and then click on the "Install" button and wait some minutes until Unity has finished its installation process.

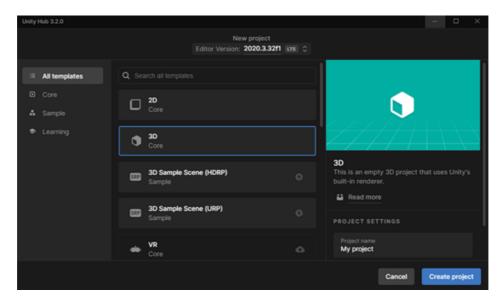




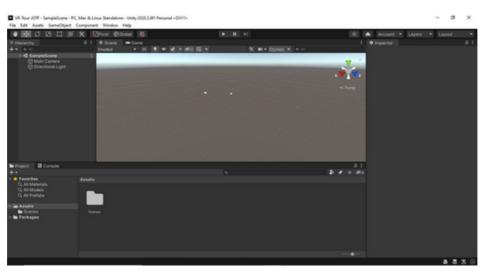


## **Creating the project**

**Step 12** : You must choose which type of project you will create. On the left side of the screen, you can choose from several templates which will help you configure your Workspace. Make sure "3D" is selected, then click on the "Create project" button and wait until Unity opens. When creating make sure that the correct version is selected.



**Step 13**: Now that you are inside Unity you should see a screen like this one. This is your workplace. By default, the lower window will have selected the "Assets" folder, and the only folder inside the Assets folder is the "Scenes" folder.





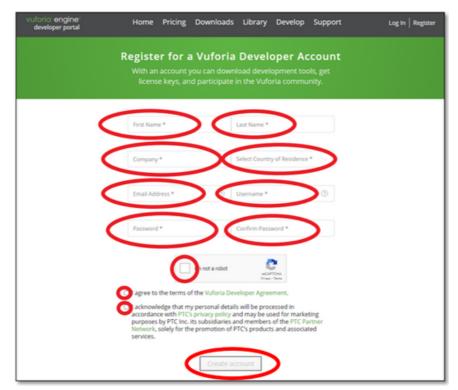


# Vuforia

**Step 14**: Go to https://developer.vuforia.com/ and click "Register" on the right top corner.



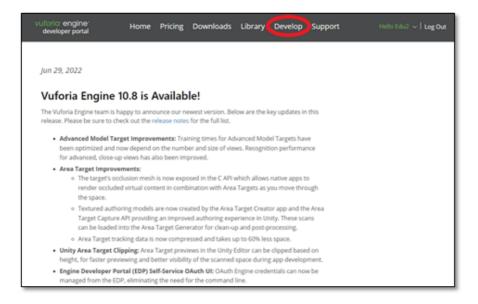
**Step 15**: Fill in the needed info. In company place you can type "None". After filling the info click on "Create Account".





Step 16: After Logging in, click on "Develop".

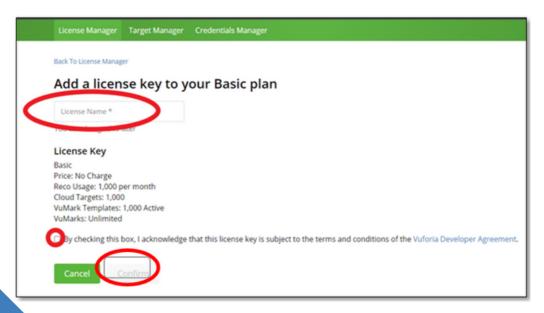
09



**Step 17**: Click on "Get Basic" in the license manager.

arrendes harm	
License Manager Target Manager Credentials Manager	
License Manager	Get Basic Buy Premium Buy Cloud Add On
Learn more about licensing. Create a license key for your application.	
Search	

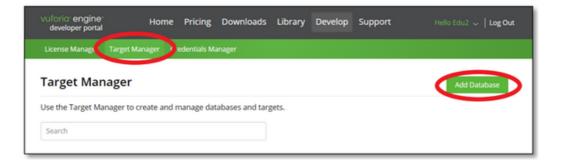
Step 18: Give your License any name and agree. Then click "Confirm".



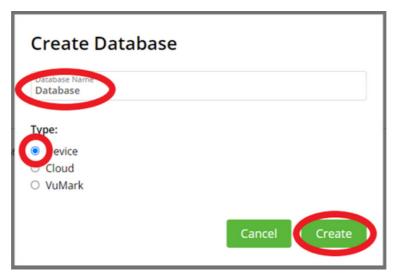




Step 19: Click on "Target Manager" and then on "Add database".



**Step 20**: Name your database. Select the type "Device" and then click "Create".



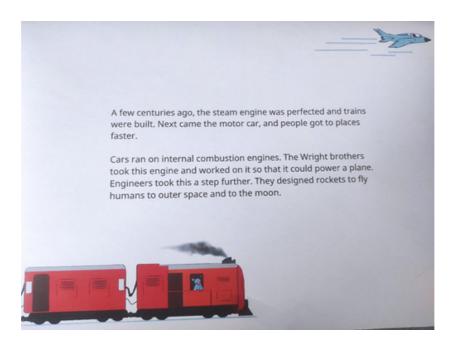
**Step 21**: Give your License any name and agree. Then click "Confirm".

Use the Target Manager to cre	ate and manage databases and targets	k.		
Search				
	Туре	Targets	Date Modified	
Database	Device	0	Jul 27, 2022	





**Step 22**: Take a photo from a book of your choice. Make sure to include only the page in the picture. You can get this book from this link: http://freekidsbooks.org/wp-content/uploads/2021/08/whoopeehyperloop-pratham\_FKB.pdf . Here is a example:



**Step 23**: The pictures need to be under 2mb, if the image is over 2mb you need to use this image compressor: https://imageresizer.com/image-compressor

#### Step 24: Click on "Add target".

Targe	t Manager > Database				
Da Туре	e:				
	Targets (0)				
<	Add Target				Download Database (All)
	Target Name	Туре	Rating ①	Status 🗸	Date Modified





**Step 25**: Select your compressed image, set the Type to "Image", set width to "6" and Name your image. After that click on "Add".

Add Target			~
	$\Box$	07	
Image	Multi	Cylinder	Object
File:			
IMG_20220727_174	4826.jpeg		Browse
.jpg or .png (max file	2mb)		
Width:			
6			
Enter the width of yo same scale as your a unit scale. The target	ugmented virtual co	ontent. Vuforia uses	
Page 4			
Name mult be uniqu the unit be reported in		hen a target is detect	ed in your application,
		Cancel	Add

**Step 26**: Wait while the picture is being processed, this should not take long.

Targets (1)				
Add Target				Download Database (All)
<ul> <li>Target Name</li> </ul>	Туре	Rating ①	Status 🗸	Date Modified
Page-4	Image	*****	Processing	Jul 28, 2022 20:33





## Installing Java SDK & JRE

**Step 27**: We will need to instal java JDK and JRE, you can install them from here: Java Downloads | Oracle To download java JDK. To install it choose your operating system and then click on x64 installer.

Java > Technical Details >	1031175				
Java Downloads					
Java downloads Tools and resources Java archiv	e				
🛓 Looking	; for other Java down	loads? OpenJOK Early Access Builds 38E for Consumers			
Java 18 and Java 17 available now					
Java 17 LTS is the latest long-term support release for th in production and free to redistribute, at no cost, under					
JDK 18 will receive updates under these terms, until Sep	tember 2022 when it will be	superseded by JDK 19			
JDK 17 will receive updates under these terms, until at le	ast September 2024.				
Java 18 Java 17					
Java SE Development Kit 18.0.2 download	ls				
Thank you for downloading this release of the Java <sup>14</sup> Pk	Itform, Standard Edition Dev	elopment Kit (JDK <sup>™</sup> ). The JDK is a development environment for building applications and			
components using the Java programming language.					
The JDK includes tools for developing and testing progr	ams written in the Java prog	ramming language and running on the Java platform.			
Linux macOS Windows					
Product/file description	File size Downle	bad			
x64 Compressed Archive	172.79 MB https://	/download.oracle.com/java/18/latest/jdk−18_windows-x64_bin.zip (sha256 亿)			
x64 Installer	153.37 MB https://	/download.oracle.com/java/18/latest/jdk-18_windows-x64_bin.exe (sha256 亿)			
x64 MSI Installer	152.25 MB https:/	/download.oracle.com/java/18/latest/jdk-18_windows-x64_bin.msi (sha256 亿)			

**Step 28**: Download the file and then click on it to start the installation. When the installation is started click on "Install".

Java Setup - Welcome	-		×
Welcome to Java - Updated License Terms			
The terms under which this version of the software is licensed have chang Updated License Agreement This version of the Java Runtime is licensed only for your personal (non-commercial) de use. Commercial use of this software requires a separate license from Oracle or from your Click Install to accept the license agreement and install Java now or click Remove to uni system. No personal information is gathered as part of our install process. <u>Details on the infor</u>	sktop an software nstall it fr	vendor. om your	
Change destination folder		Remove	





**Step 29**: To install java JRE, scroll to the bottom of the page and then you should see "JRE 8", click on it.

x64 Compressed Archive	SILSO MB			🔒 jok-8u540-linux	x64.tar.gz
Documentation Download					
JELO					Ť
Server JRE 8					÷
Which Java 8 package d	o I need?				
Seftware developers: Java SE Dev (20K) For Java developers. Includes a con tools for developing, debugging, an Java applications.	server 3 plete JRE plus For dep d monitoring Include commo does no	strators running applications o law illumitme Environment [Servi loying_Java applications on servi s tools for JMM movimoring and t nly required for server applicatio is include broaser integration [Ja- -update, or an installer. nore	er JRE). rs. rols rs. but	Runtime Environm Covers most end-ur	lava on a desktop: Java ent (DBL) EL Contains everything applications on your system.
Belease information					
Online Documentation					
<ul> <li>Installation Instructions</li> </ul>					
<ul> <li>Release Notes</li> </ul>					
<ul> <li>Java SE Licensing Information User Ma</li> </ul>	nual (includes third-party licenses	0			
<ul> <li>Certified System Configurations</li> </ul>					
<ul> <li>JDK ReadMe</li> </ul>					
<ul> <li>JRE ReadMe</li> </ul>					
<ul> <li>Demos and Samples Archive</li> </ul>					
Resources for	Why Oracle	Learn	What's Nev	,	Contact Us
Carners	Analyst Reports	What is cloud computing?	News		US Sales: +1.800.633.0738
Careers Developers	Gartner MQ for Cloud ERP	What is CRM?	Oracle CloudW	bild	How can we help?

**Step 30**: Choose your operating system and then download x64 installer. To install Java JRE you need to register to Oracle.

Product/file description	File size	Download
x86 Online Installer	2.16 MB	🛔 jre-8u341-windows-I586-iftw.exe
x86 Offline Installer	72.73 MB	A jre-8u341-windows-I586.exe
x86 Compressed Archive	70.95 MB	🔒 jre-8u341-windows-I586.tar.gz
xó4 Installer	83.46 MB	🔒 jre-8u341-windows-x64.exe
x64 Compressed Archive	76.97 MB	🔒 jre-8u341-windows-x64.tar.gz





**Step 31**: After clicking on Dowload you should see something like this, check the little square and then click on download.



**Step 32**: Click on "Create Account" if you dont have an Oracle Account yet

Oracle account sign in	
	K
Password	1111
Sign in	
Need help?	
Don't have an Oracle Account?	1
Create Account	
© Grace   reme or one ( primacy policy	

	Already have an	Oracle Account	7 Sign In
Email Address*			tor enall address is your commaries.
Passaged*			assesseds must have upper and lower card lefters, at least 1 under and special character, not match or contain enail, and
			Chard & charactery long
Retype password*			
Country*	-Select-	~	
	Country is required		
Name*	First or Given Name	Last Nam	
Job Title*			
Work Phone*			
Company Name*			
Address*			
City*			
State/Province	-Select-	~	
ZIP/Postal Code*			
	Send me marketing commu		
	You may upt out of all marketing com By clicking on the "Create Accou		<ul> <li>understand and agree that the use of Oracle's</li> </ul>
	web site is subject to the Oraclea use of your personal information	com Terms of Use, Ad	dditional details regarding Oracle's collection and ion about access, retention, rectification, deletion valiable in the Oracle Privacy Policy.
	Create Account		
		and other topics, is an	calable in the Oracle Privacy Policy.

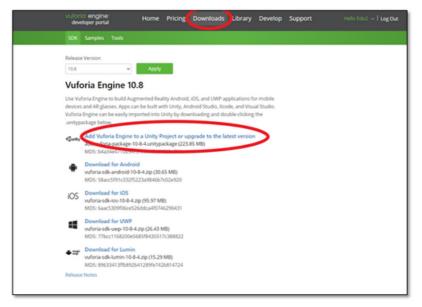




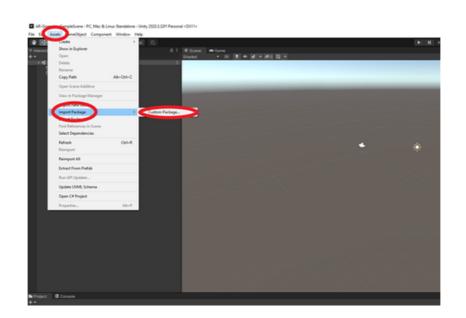
**Step 34**: After registering you can download the file and install this. Installation will be pretty much the same as Java SDK (You might need to redo Step 31 if after registering it doesnt start downloading)

# **Downloading Vuforia for Unity**

**Step 35**: Go back to Vuforia and click on "Downloads" and download Vuforia for Unity



**Step 36**: Go back into Unity and hover over "Assets" on the left top corner. After hover over "Import Package" and then click on "Custom Package".

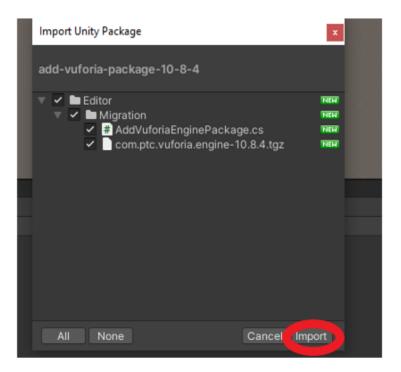




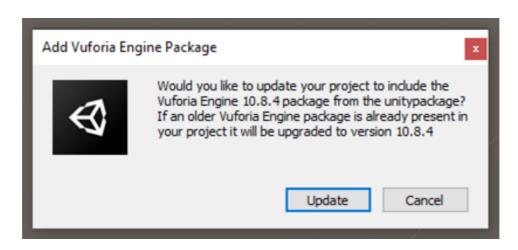


**Step 37**: Find the file downloaded from Vuforia and then click on it to add it.

**Step 38**: After you've done that a new window should pop up. Click on "Import"



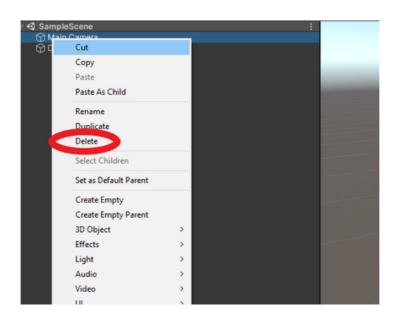
**Step 39**: There should be another pop up window. Click on "Update" and the Unity project will restart.



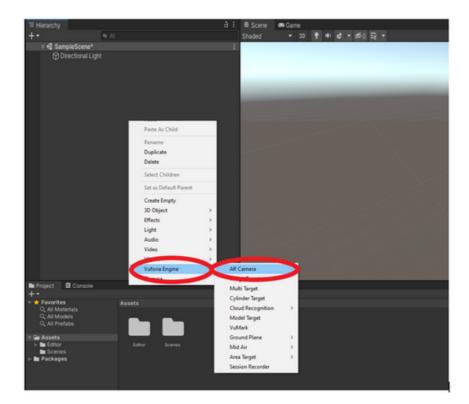




**Step 40**: Delete the main camera by right clicking on it and pressing "delete"

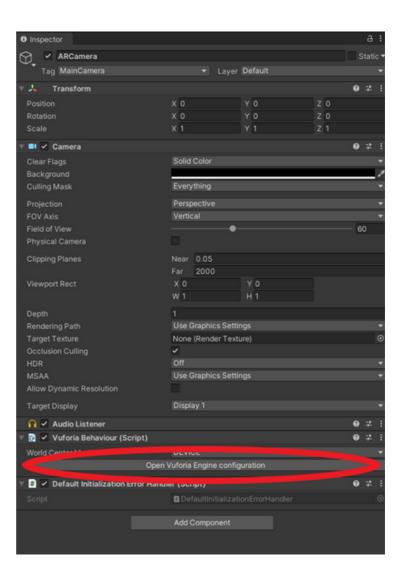


**Step 41**: Add an AR camera by right clicking anywhere on the Hiearchy field, then hover over "Vuforia Engine" and press "Ar Camera".





**Step 42**: Click on "AR Camera" and a new window should open up. Click on "Open Vuforia Engine configuration"



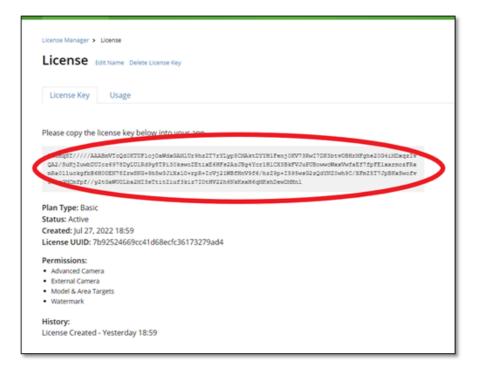
**Step 43**: Go back to Vuforia website and press on "Develop", after that select your license.

vuforia: engine: developer portal	Home Pricing	Downloads	Library Develop	Support	Hello Edu2 🧹   Log Ou
License Manager Targ	et Manager Credentials Ma	nager			
License Manag	ger		Get Basic	Buy Premium	Buy Cloud Add On
Learn more about licens Create a license key for	sing. your application.				
Search					
Name	Primary	UUID ① Type	Status	~	Date Modified
License	N/A	Basic	Active		Jul 27, 2022

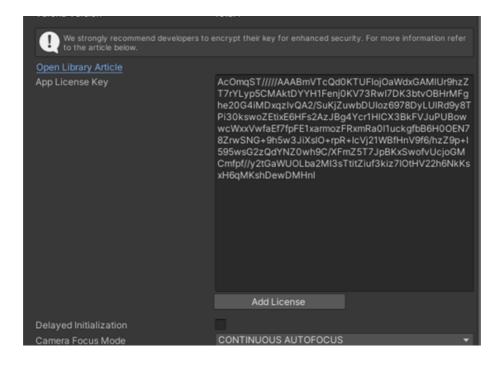




Step 44: Press on the license key to copy it.



Step 45: Now go back in Unity and paste it in "App License Key" field.



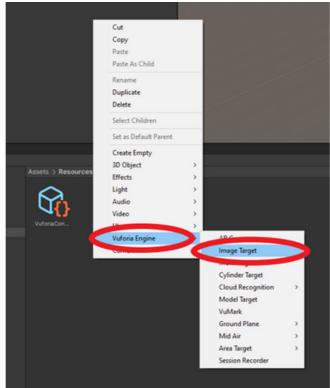


#### **Step 46**: Unthick "Include Arcore library"

	Open
⊤ Global	
Vuforia Version	10.8.4
We strongly recommend developers to e to the article below.	
Open Library Article	
App License Key	AcOmgST/////AAABmVTcQd0KTUFlojOaWdxGAMIUr9hzZ T7YtUyp5CMAktDYYH1Fenj0KV73Rwi7DK3bx0BHMFg he20G4iMDxqzhvQA2/SuKjZuwbDUloz6978DyLUIRd9y8T PI30kswoZEtixE8HFs2AzJBg4Ycr1HICX38kFVJuPUBow wcWxxVwfaEf7fpFE1xarmozFRxmRa011uckgfb8H00CN7 8ZrwSNG+9h5w3JIXSIO+rpR+IcVj21WBfHnV9f6/hz29p+1 59SwsG2ZQ4YNZ0wh9C/KFmZ5T7JpBKxSwofvUcj0GM Cmfpf//y2tGaWU0Lba2MI3sTtitZluf3kiz7i0tHV22h6NkKs xH6qMKshDewDMHnI
	Add License
Delayed Initialization	
Camera Focus Mode	CONTINUOUS AUTOFOCUS
Additional Focus modes can be set using all platforms.	
Camera Device Mode	MODE_DEFAULT +
Log Level	ALL 🗸
Max Simultaneous Tracked Images Virtual Scene Scale Factor	1
Poses reported by Vuforia will be transfe HoloLens and MagicLeap, a factor othe	prmed accordingly. Scene content will not be scaled. Note that on r than 1.0 is not supported.
Trained Targets Continuous Search	~
Share Recordings in iTunes	
Databases No Databases found.	Add Database
Disable model extraction from databases	Add Database
Video Background Enable video background	2
Video Background Shader	Custom/VideoBackground O
Number Divisions	2
▼ Shaders	
Occlusion shader	
Device Tracker	
Track Device Pose	×
Developers looking for Extended Trackin	
Open Library Article	
Android Settings	
ARCore Requirement	OPTIONAL •
Include ARCore library	used version is 1.22.0
▼ Play Mode	WERCALL
PlayMode Type No webcam profile has been found for a	VEBCAM  vour webcam model: 'OBS Virtual Camera'.
A default profile will be used.	
Webcam profiles ensure that Play Mode Asset Labels	periorina wea wan your webcam.



**Step 47**: Now add a Image Target by right clicking anywhere on the Hiearchy field, then hover over "Vuforia Engine" and press "Image Target".



**Step 48**: Go back to Vuforia website and click on "Target Manager", then Click on your Database

vuforia: engine: developer portal	Home	Pricing	Downloads	Library	Develop	Support	Hello Edu2 🤟 🕇 Log Out
License Manager Target Ma	mager Cr	edentials M	anager				
Target Manager							Add Database
Use the Target Manager to c	Use the Target Manager to create and manage databases and targets.						
Search							
Database		1	lype		Targets	Date Modified	
Database		(	Device		1	Jul 28, 2022	





Step 49: Press on "Download Database (All)".

Database Edit Name				
Targets (1)				
Add Target				Download Database (All)
Target Name	Туре	Rating ①	Status 🛩	Date Modified
D Page-4	Image	****	Active	Jul 28, 2022 20:33

**Step 50**: Click on "Unity Editor" and then download it , this file will be used in the next step so save it in an accesible place.

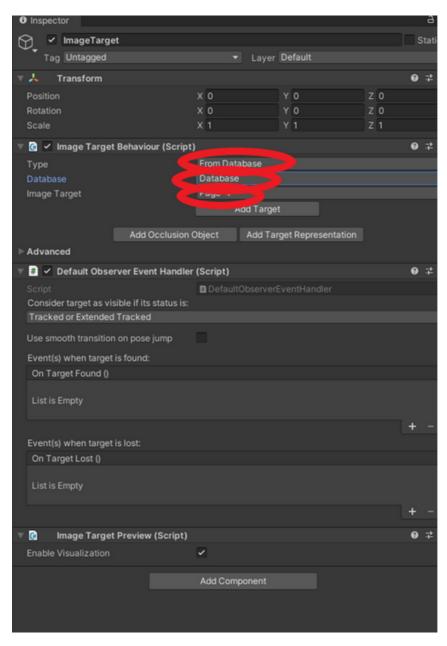
Download Data	base			
1 of 1 active targets will be downloaded				
Name: Database				
Select a development platform:				
🔾 Android Studio, Xcode	or Visual Studio			
OJnity Editor				
	Cancel	Download		

**Step 51**: Repeat Step 36 & 38, but this time with the file you downloaded in the last step.

**Step 52**: Left click on Image Target and on the right side in inspector in "Image Target Behaviour" set Type to "From Database" then Select the database and then select the image if its not already automatically selected.







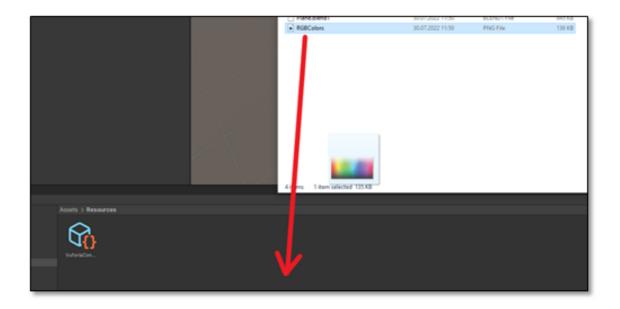
**Step 53**: Hold Left click on the Image target in Hierarchy and drag it under "ARCamera"

'≔ Hierarchy	
+-	er All
🔻 🚭 SampleScene*	
<ul> <li>⑦ Directional Light</li> <li>▼</li></ul>	

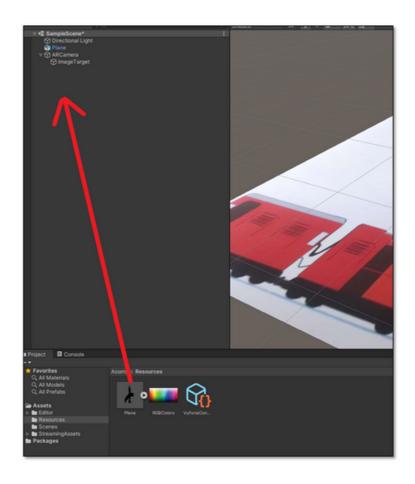




**Step 54**: Download the file "Plane.fbx" and "RGBColors.png", then drag it in Unity.



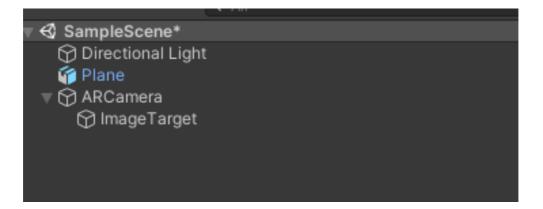
#### Step 55: Drag the model into hiearchy



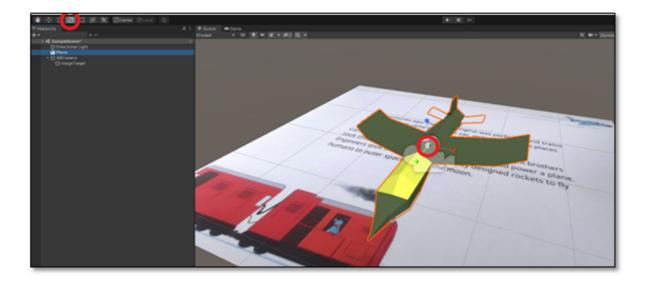




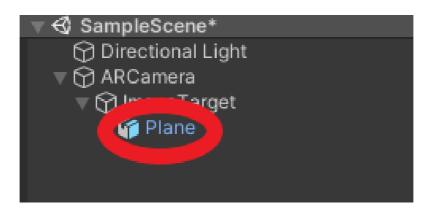
**Step 56**: The Hiearchy should look like this.



**Step 57**: Left click on the plane and using the "Scale tool" on the left top corner, scale the plane down by holding the white cube in middle.



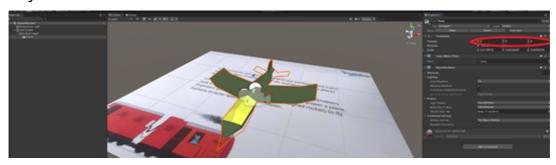
Step 58: Drag the Plane under "Image Target"



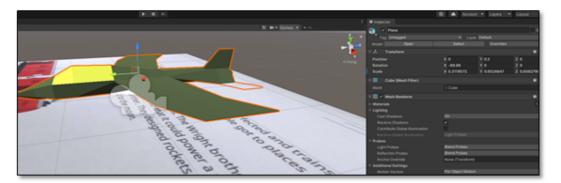




**Step 59**: Left click on the plane and on the right side of your screen a new window should pop up with info about the plane. Set the position to "0" on every axis.



Step 60: Set the Y Position to "0.2".



**Step 61**: Press Ctrl + S to save the project otherwise you can lose everything when building

**Step 62**: On the top left corner hover on "File" and then press on "Build Settings"

51	AR-Gramata - SampleScene - P	C Mac & Linux	Standalo	a Unitu	2020 2 22	f1 Derrora	It ZDV115								
				-	2020.3.32	rreisone	Sparie								
File	Edit Assets GameObject	-													
	New Scene	Ctrl+N	er 😘	Local											
	Open Scene	Ctrl+O					# Scene	or Gi	ame						
	Open Recent Scene	3					Shaded	•		1	40	\$	<b>1</b> 100	聯	
	Save	Ctrl+S													
	Save As	Ctrl+Shift+S													
	Save As Scene Template														
	New Project														
	Open Project														ET
	Save Project													F	1
	Build Settings	Ctrl+Shift+B												1	-
	Build And Run	Ctrl+B										/	1		L
	Exit											1	7		
											1	5			
										-	P				





**Step 63**: Press on "Add Open Scenes" then select the platform as "Android", after this click on "Switch Platform". If its already set to android you can skip this step.

B	luild Se	ttings		: 🗆 ×
	Scene	s In Build		
	✔ Sce	nes/SampleScene		0
				Add Open Scenes
	Platfo	rm		
	-	PC, Mac & Linux Standalone 🛛 🔫	🖬 Android	-
	Ē	WebGL	Texture Compression	Don't override 👻
		Andreid	ETC2 fallback	32-bit 👻
	I.	Android	Export Project	
	iOS	iOS		
			Build App Bundle (Google Play	
	rrs	PS5	Create symbols.zip Run Device	Fetching connected devices.
	tvos	tvOS	Development Build	Peterning connected devices.
			Autoconnect Profiler	
	P.54	PS4	Deep Profiling	
	-	Linksreel Mindows Distance	Script Debugging	
		Universal Windows Platform	Scripts Only Build	Patch Patch And Run
	۵	Xbox One	Compression Method	LZ4 🗸
				hout Unity Cloud Build
ct	Playe	er Settings	Switch P	Platform uild And Run
vorite	s	Assets > Resources		

**Step 64**: Wait until it has reloaded. After that close the Build Settings window.





**Step 65**: On The Left top corner hover on "Edit", after that press on "Project Settings"

_			ampleScene - A				al <uxti></uxti>		
File	Edit		GameObject						
*		Redo	lection Change		Ctrl+Z Ctrl+Y	Cocal	5		
≌н +								а:	# Scene 😎 Shaded
Τ'		Select Al	-		Ctrl+A				Shaded
		Deselect Select Ch		-	hift+D hift+C				
			efab Root	S Ctrl+S					
		Invert Se		currs	Ctrl+I				
		Cut			Ctrl+X				
		Copy			Ctrl+X Ctrl+C				
		Paste			Ctrl+V				
		Paste As	Child	Ctrl+S					
		Duplicat	•		Ctrl+D				
		Rename		, in the second s	ctri+D				
		Delete							
		Frame Se	alacted		F				
			w to Selected	s	hift+F				
		Find			Ctrl+F				
		Play			Ctrl+P				
		Pause		Ctrl+S	hift+P				/
		Step		Ctrl+	Alt+P				- /
		Sign in							
		Sign out							/
		Selection	n		>				
		Project S	ettings						
		Preferen	ces						
		Shortcut	s						
		Clear All	PlayerPrefs						
		Graphics	Tier		>				
		Grid and	Snap Settings						

**Step 66**: Click on "Player" then on Android icon and then on "Other Settings".



	٩			
Adaptive Performance Audio Editor Graphics Input Manager Package Manager Physics Physics 2D Haver Preset Manager Quality Scene Template Script Execution Order Services Ads Cloud Build Cloud Build Cloud Diagnostics Collaborate In-App Purchasing Legacy Analytics Tags and Layers TextMesh Pro Time Time Time Version Control XR Plugin Management	Player Product Name Version Default Icon Default Cursor		AR-Gramata 0.1	None (Texture 2D) Select (Texture 2D) Select
	Cursor Hotspot  Settings for Android  Icon  Resolution and Preser  Splash Image  Other Settings  Publishing Settings	9 Itation	× •	

#### Step 67: Scroll down until you see this

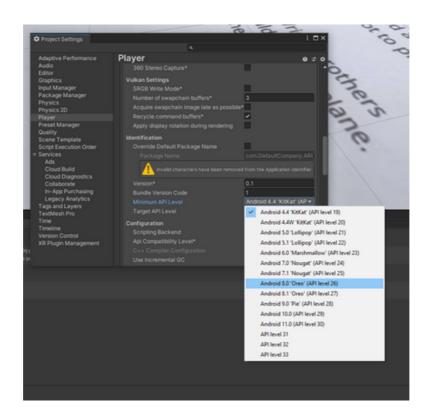
Player	0 ‡ ¢
360 Stereo Capture*	· ·
Vulkan Settings SRGB Write Mode*	•
Number of swapchain buffers*	3
Acquire swapchain image late as possible*	
Recycle command buffers*	✓
Apply display rotation during rendering	
Identification	
Override Default Package Name	
Package Name	com.DefaultCompany.AR(
Invalid characters have been removed	from the Application Identifier.
Version*	0.1
Bundle Version Code	1
Minimum API Level	Android 4.4 'KitKat' (AP 🕶
Target API Level	Automatic (highest insta
Configuration	



#### **Step 68**: Click on Minimum API Level.

Acquire swapchain image late as possible*	
Recycle command buffers*	✓
Apply display rotation during rendering	
Identification	
Override Default Package Name	
Package Name	com.DefaultCompany.AR(
Invalid characters have been removed	from the Application Identifier.
Version*	0.1
Bundle Version Code	1
Minimum API Level 🧧	-ndroid 4.4 'KitKat' (AP
Target API Level	Automatic (ingreatinate*
Configuration	

Step 69: Change it to Android 8.0 'Oreo' (API level 26)







**Step 70**: Close the window and press Ctrl + S again.

Before exporting if you want to make another page or animation to the model scroll down to find the extra steps to do that. If you will want to do this afterwards you will need to export twice.

# **Bulding and using the APP**

#### Step 71: Repeat Step 62

Step 72: Press "Build".

Build Settings		:
Scenes In Build		
✓ Scenes/SampleScene		٥
Platform		Add Open Scenes
PC, Mac & Linux Standalone	Android	
WebGL	Texture Compression	Don't override 🔹
🚔 Android 🖪	ETC2 fallback Export Project	32-bit 👻
iOS ios	Symlink Sources Build App Bundle (Google Play	
Prs PS5	Create symbols.zip Run Device	Default device - Refresh
tvos tvos	Development Build	
Pra PS4		
Universal Windows Platform		Patch Patch And Run
🖄 Xbox One	Compression Method	LZ4 👻
		Learn about Unity Cloud Build
Player Settings	В	uild Build And Run

**Step 73**: Name and save the file wherever you want.

**Step 74**: If you have done everything correctly it should finish building and you should see the file where you located it.





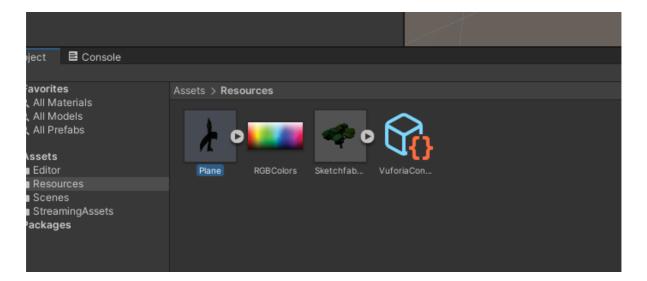
**Step 75**: Last step. Get this file to your phone. When you get this file to your phone Press on its icon and install it. It may put out a warning, but ignore it, because the game you created is not seen anywhere else so the system may think its a malevolent file.

Open up the application, it may take a while until it starts showing something. After that point your camera on the printed out page 4 and you should see a plane.

### **Extra step: Animation**

Follow these steps to animate the plane by making it fly.

**Step 1**: Left Click on "Plane" Model



**Step 2**: On the Right side of your screen a new tab should open up. Press on "Rig" and change the animation style to "Legacy"



Inspector		а:
Plane Import Settings		<b>₽</b> 3
		Open
	Mode Rig nimation Materials	
Animation Type	Legacy	
Generation	Store in Root (New)	
Skin Weights	Standard (4 Bones)	
		Revert Apply

#### **Step 3**: Click on "Animation" and the set Wrap Mode to "Loop".

• mapeetor			- · ·
Plane Import Settings			
*			Oper
Model	F Animation Miterials		
Import Constraints			
Import Animation	~		
Bake Animations			
Wrap Mode	Loop		
Anim. Compression	duction		
Rotation Error	0.5		
Position Error	0.5		
Scale Error	0.5		
Rotation error is defined as maximum angle de distance/delta deviation allowed in percents	viation allowed in degrees, for others it is defined as ma		
Animated Custom Properties			
Clips		Start	Enc
Cube CubeAction		0.0	36.0
		+	
			ิด
Cube CubeAction			

**Step 4**: Press "Crtl + S" to save the project.

**Step 5**: Repeat steps 71 to 75 related to building and using the application.





## Extra Step: Adding an extra page

#### Follow these steps to make another page in this application.

**Step 1**: Repeat steps 22 to 26 but with a different page. Save the picture in the same database. I will be using page 3 for this example.

**Step 2**: Repeat steps 48 to 51 with the same database.

**Step 3**: Create a new "ImageTarget" By right clicking on ARCamera and hovering on "Vuforia engine" and pressing "ImageTarget"

- G oumpreseene					
💮 Directional Light					
V 🖓 ARCamera					
▷ ImageTarg	Cut				
😚 ImageTarg	Сору				
	Paste				
	Paste As Child				
	Rename				
	Duplicate				
	Delete				
	Select Children				
	Set as Default Parent				
	Create Empty				
	Create Empty Parent				
	3D Object	>			
	Effects	>			
	Light	>			
	Audio	>			
	Video	>			
	UI	>			
	Vuforia Engine	>	AR Camera		
	Camera		Image Target		
	Move To View		Multi Target		
	Align With View		Cylinder Target		
	Align View to Selected		Cloud Recognition	>	
	Toggle Active State		Model Target		
	Properties		VuMark		
	ropentes		Ground Plane	>	
			Mid Air	>	
			Area Target	>	
			Session Recorder		

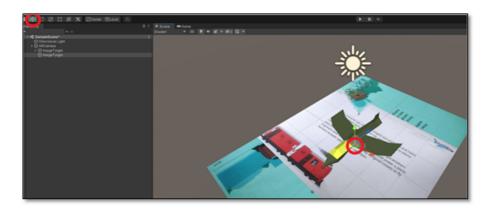




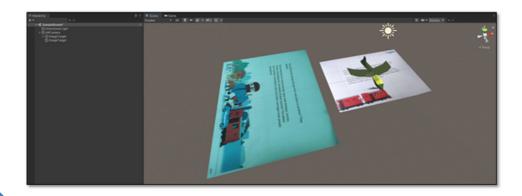
**Step 4**: Left click on the newly created ImageTarget and on the right side select "From Database" then "Database" it can be different depending how you named your database. After that add the new picture you took.

Scale		X 1	Y 1	Z 1			
🕼 🗹 Image Target	Behaviour (Script)				0 ‡		
Туре		From Data	abase				
Database		Database	Database				
Image Target	Page-3						
		A	dd Target				
	Add Occlusion (	Object	Add Target Repre	sentation			
<ul> <li>Advanced</li> </ul>							
🛚 🗯 🗹 Default Obse	rver Event Handler	(Script)			0 ‡		
Script		Default	ObserverEventHan	dler			
Consider target as vis	sible if its status is:						

**Step 5**: Move the picture using the moving tool.



**Step 6**: Move the picture using the moving tool.



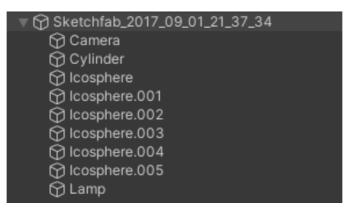




**Step 7**: Repeat step 55 with the new model. If the new model has a light and a camera right click on it and hover over "prefab" and press on "Unpack completley". If you want you can find another model by yourself if you want to make more pages later on.

▶ M Sketchf	ab 2017 00 01 21 37 34			
	Cut			
	Сору			
	Paste			
	Paste As Child			
	Rename			
	Duplicate			
	Delete			
	Select Children			
	Set as Default Parent			
	Prefab	>	Open Model	/
	Create Empty		Select Asset	
	Create Empty Parent		Select Root	
	3D Object	>	Unpack	
	Effects	>	Unpack Completely	
	Light	>		
	Audio	>		

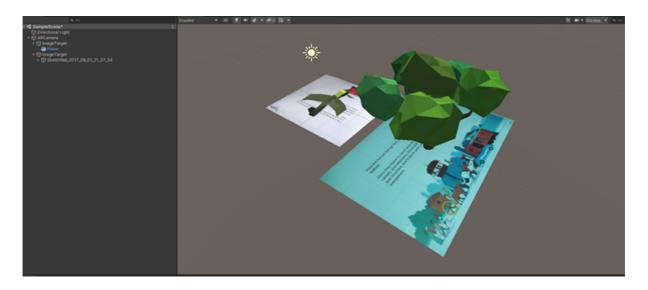
**Step 8**: After unpacking press on the little arrow. After that find the camera and the light and delete them.







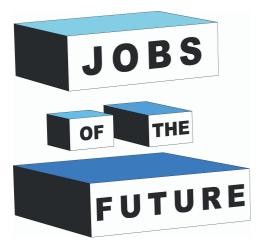
#### **Step 10**: Your workplace should look something like this



**Step 11**: Press "Crtl + S" again to make sure its saved

**Step 12**: Repeat step 71 to 75.

Using this you can make many more pages or even the full book.



Jobs of the Future is an international cooperation co-financed by the Erasmus + programme of the European Union. It aims to create synergies between enterprises active in the tech sector, youth organizations and educational institutions. The objective is to empower young people to pursue their own professional and educational goals in the tech field.

# Contact

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