



**SMART  
GUIDE**

**FOR**

**AR  
TOYS**

**AND**

**GAMES**

# Table of contents:

WHAT IS AUGMENTED REALITY?	3
AR HORIZONS	4
WHERE IS AR CURRENTLY USED THE MOST (INDUSTRIES AND PRODUCTS)?	7
AR AND CHILDREN	9
WHAT KINDS OF TOYS ARE POSSIBLE?	10
ABOUT THE TECHNICAL SIDE	11
WHAT DOES IT TAKE TO CREATE AN AR APP?	13
CONTACTS	14



# WHAT IS AUGMENTED REALITY?



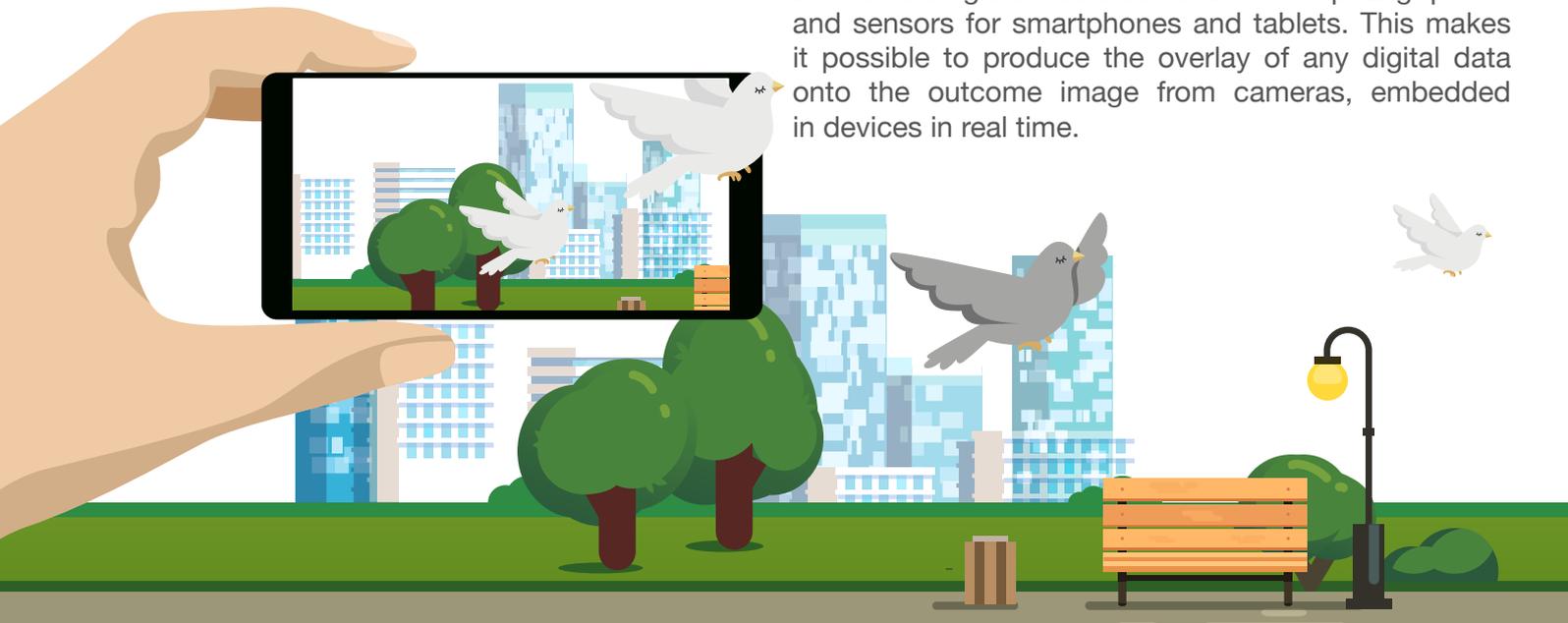
Augmented reality (AR): the technology designed to overlay **3D MODELS** onto- and into- the physical world. This term was offered by explorer Tom Caudell when he was making plane wire diagrams always kept on display for Boeing workers.

## THE REASON FOR AR's rise in popularity:

The reason for AR's rise in popularity: AR-based software solutions make it possible via a smartphone to quickly expand one's surrounding with items that do not really exist. The possibilities are endless: play, construct, compare, train and much more. Augmented reality is used as a part of special app services within companies' subsidiaries. It can even be a single model standing in a user's backyard.

## ANOTHER REASON for AR demand:

the technological advancement in computing power and sensors for smartphones and tablets. This makes it possible to produce the overlay of any digital data onto the outcome image from cameras, embedded in devices in real time.



# AR

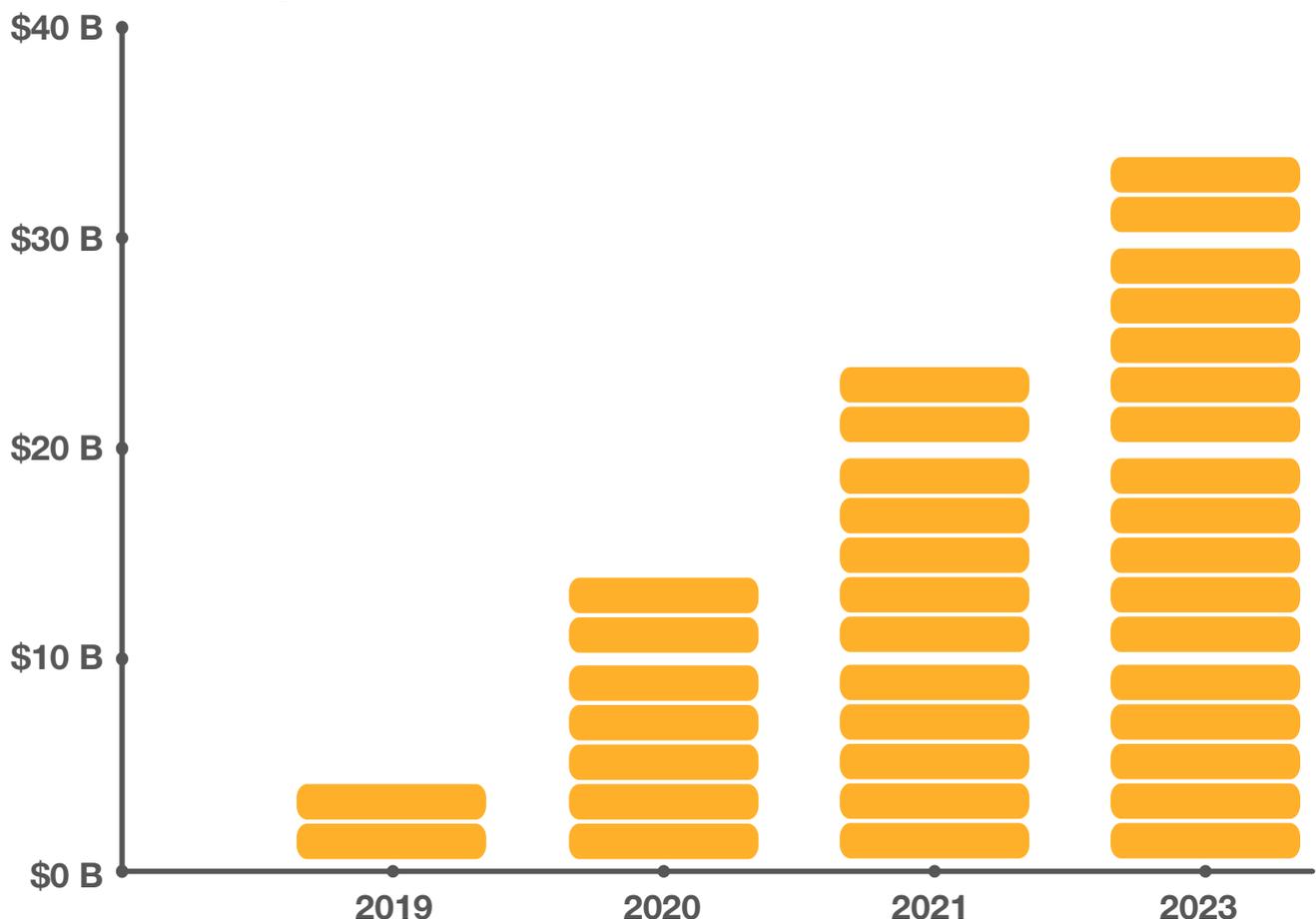


# HORIZONS

Five year ago it was a phenomenon. Today, AR has insinuated itself into our everyday reality— our augmented reality. The report by Greenlight Insight\* states the world will spend up to \$36.4 billion by 2023 on augmented reality devices and content.

## EXPECTED WORLDWIDE SPENDING ON AR HEAD - MOUNTED DISPLAYS AR CONTENT, 2019-2023

**Greenlight**  
Insights



EVERY FIELD OF HUMAN  
ACTIVITY CAN BE COVERED

# BY AUGMENTED REALITY



GEOLOCATION



GAMES



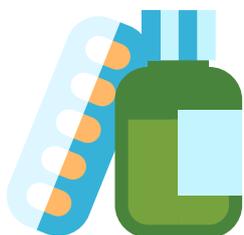
ADVERTISING



EDUCATION



REAL ESTATE



MEDICINE

and many others :)

Throughout 2017, we have witnessed established players along with many startups present their AR development platforms and solutions to the market.

**GOOGLE** **MICROSOFT**  
HAVE MADE THEIR  
AR SDKs AVAILABLE  
FOR DEVELOPERS  
**FACEBOOK** **APPLE**

AR apps will become an intricate part of people's lives, just as social networks have (an AR-based platform for safe image sharing Snapchat already has!). New devices can create a revolution in information consumption and, probably, our relationship revolution as well. Those who offer AR will survive and thrive.



# WHERE IS **AR** **CURRENTLY USED** **THE MOST**

## ?

(industries and products)

## AR IS AN EASY WAY TO VISUALLY PRESENT THINGS:

### GAMES AND TOYS

enable playing with favorite toys through smartphone screens gaining completely new experiences. Almost everyone knows about Pokémon Go and Ingress. Also, there are many AR mini-games helping kids expand their understanding about various everyday subjects like animals, Homo sapiens, planets, etc.

### MUSEUMS AND TOURISM

display extra information, visualize items related to different historical periods and re-create certain historic events related to the object being viewed.

### FURNITURE MANUFACTURERS

help users “try out” furniture at home. Users can see how well a certain piece of furniture fits in one of their rooms.

### PUBLISHING BUSINESSES

present interactive illustrations with AR apps or create visualized stories.

### RETAIL AND MARKETING

provide advertising information by overlaying AR advertising objects onto the real world. This lets potential customers literally hold the object in their hands, increasing both their confidence and desire to buy.



# WHERE IS AR CURRENTLY USED THE MOST ?

(industries and products)

## REAL ESTATE

show information and visualize buildings available for sale by projecting images of these properties.

## REPAIR

display how building/home interiors will look like after construction has been completed.

## MEDICINE

visualize techniques that can be applied in surgery and in studies at research laboratories.

## EDUCATION

create incredibly dynamic material with AR illustrations.

## SPORTS

provide a more informative description for rules of a game or for a training exercise. Also, gamification elements with AR help athletes stay motivated during the entire training session.

## VIRTUAL SHOWROOMS AND/OR ECOMMERCE CONFIGURATORS

interact with a product model when and where you want. See its real dimensions: in your room, in your hands, anywhere and everywhere.

# AR AND CHILDREN



AUGMENTED REALITY GIVES  
CHILDREN INCENTIVE

## TO STAY ACTIVE

There are a multitude of amazing impressions for children. They can see their favorite fairy-tale characters and superheroes “come alive”. The characters come out of books as if with a wave of a magic wand. Any coloring book can turn into the world of exciting adventures with moving illustrations and bright pictures.

As for fans of computer games, the development of an augmented reality app gives them the opportunity to break the boundaries of their own imagination and turn any place - even a small apartment - into a gaming portal by carrying a video game from the computer screen to a physical space where everything (furniture and even walls)

## BECOME PART OF THE GAME



# WHAT KINDS of TOYS ARE POSSIBLE ?

## MODEL TOYS

Kids can play with their favorite toys in even more creative ways by pointing a camera at it and seeing its model on the screen. They can play mini-games and compete with friends by gathering coins or points.

## COLORING BOOKS

Kids color a picture that pleases them. They can then see the results as a 3D model, take a photo of it or add to their personal collection.

## BOARD GAMES

Augmented reality can be a part of the mechanics of a board game. Players can see their characters displayed on game cards. They can delve into more details on a smartphone, like a damaged bar, power, strength, etc. Or, see characters fighting on the smartphone screen.

## CARDS

Help kids memorize objects or categorize them based on shapes, colors, textures or any other criteria. Work well with both games and learning.

## OUTDOOR ACTIVITIES

Pokémon Go is the best-known augmented reality game. It got teenagers out of the house to spend more time outdoors, learn about their neighborhood and meet new people. This works for any popular fictional world.

## FUN PHOTO FILTERS

Different social networks and popular entertainment apps, like the Star Wars app, add cool filters allowing users to try on outfits of their favorite characters.

## BOOKS

3D illustrations help readers imagine what the author is writing about. Also, readers no longer just follow the storyline. They can interact with books using augmented reality while playing mini-games or completing quests.

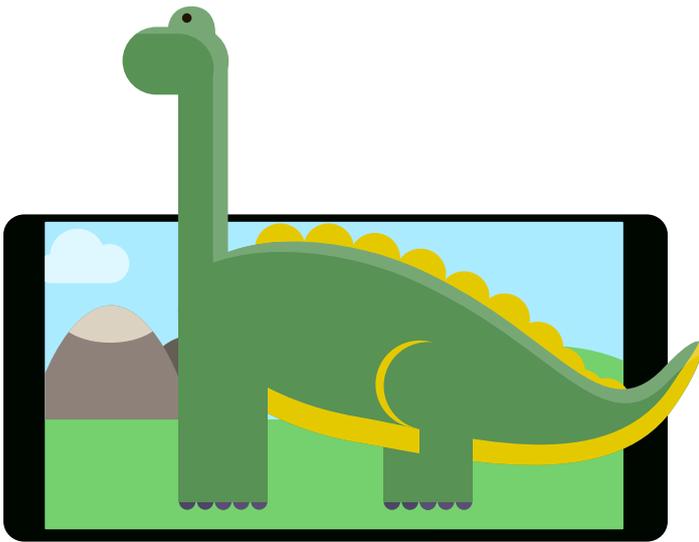
## PUZZLES

Put a puzzle together, aim a camera at it and enjoy a 3D model with all the details that cannot be printed on a 2D picture.

# ABOUT THE TECHNICAL SIDE

The simplest way to create an app with augmented reality is to apply a virtual image to a video from a phone camera.

Yes, everything is definitely easy. But... it'll just be a picture over an image from camera.



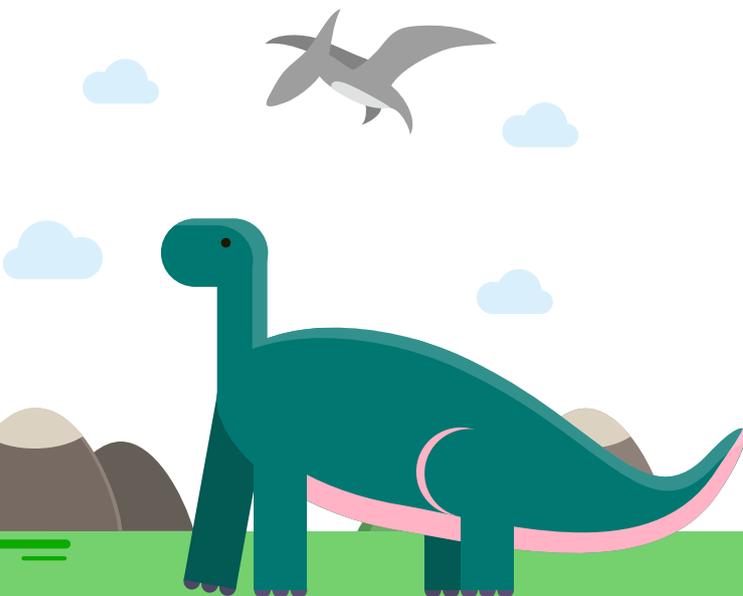
A full-fledged augmented reality of toys and games development includes both drawing virtual objects from a camera and linking them to surroundings. It uses either marks located in real life which a virtual object links to - or anchors (GPS-coordinates).

You see not just one side of a virtual object placed on your table, but also have the opportunity

## TO WALK AROUND IT AND SEE

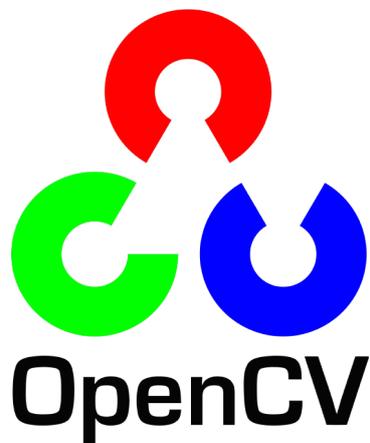


all the sides. To come closer and look at it in detail is far more enjoyable. Besides marks, to which the object is linked, it's necessary to take into account the position of the device, counting and processing the reading of compass, accelerometer, and gyroscope to display the virtual object properly.



# THE LIBRARIES WHICH HAVE BEEN FINALIZED

SPECIFICALLY FOR OUR NEEDS  
BY OUR TALENTED PROGRAMMERS  
TO ACHIEVE SUCH MIRACLES INCLUDE:



# WHAT DOES IT TAKE TO CREATE

# AN AR APP?

## CONCEPT

describe an app idea and its key features. Show it to a development team or a company. Get a free estimate.

## ANALYSIS OF REQUIREMENTS

meet the team, decide on the feature list, technological stack and timeline.

## PROTOTYPING

get sketches of the most important screens of the app.

## UI/UX

visually design the app screens.

## FUNCTIONALITY

develop all layouts and app components. The source code is ready for testing.

## QA

test the application under different conditions and loads, then perform bug fixes.

## PUBLISHING ON THE STORES

examine the app for standard compliance before publishing it on the App Store or Google Play.

## ANALYSIS OF USER FEEDBACK

first adopters try out the app and give their feedback. Based on your early adopters' feedback, improve app and/or introduce new features.

# CONTACTS

[SITE@INVISIBLE.TOYS](mailto:SITE@INVISIBLE.TOYS)

[WWW.INVISIBLE.TOYS](http://WWW.INVISIBLE.TOYS)

+49-0302-067-35-34