1 out of 4

Today’s 20 yrs-old becomes disabled before retirement

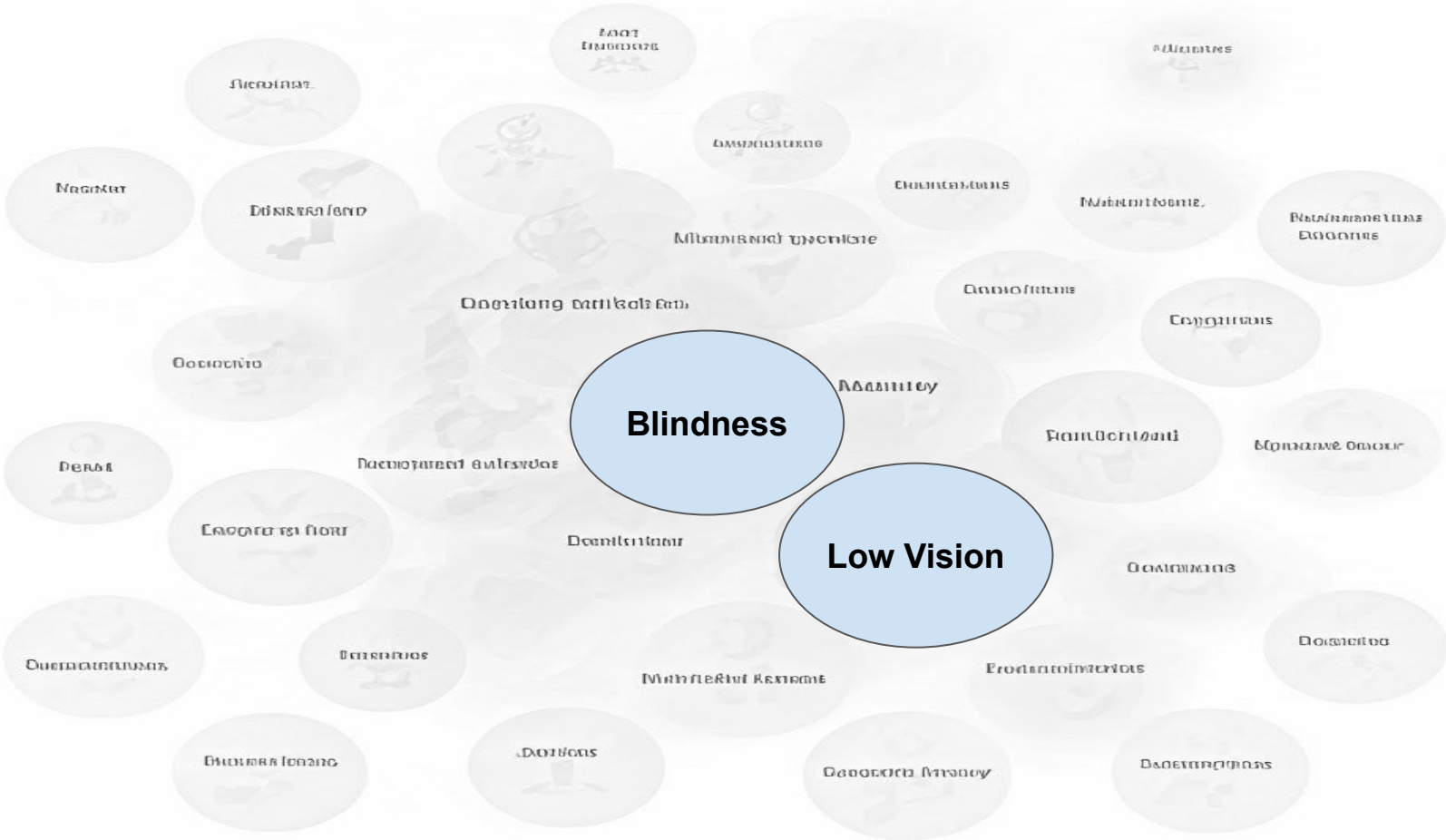
Cited from https://disabilitycanhappen.org/

1.3 billion world-wide have significant disability

(estimated)

Cited from https://www.who.int


Healthy life


Blindness
Low Vision

Google

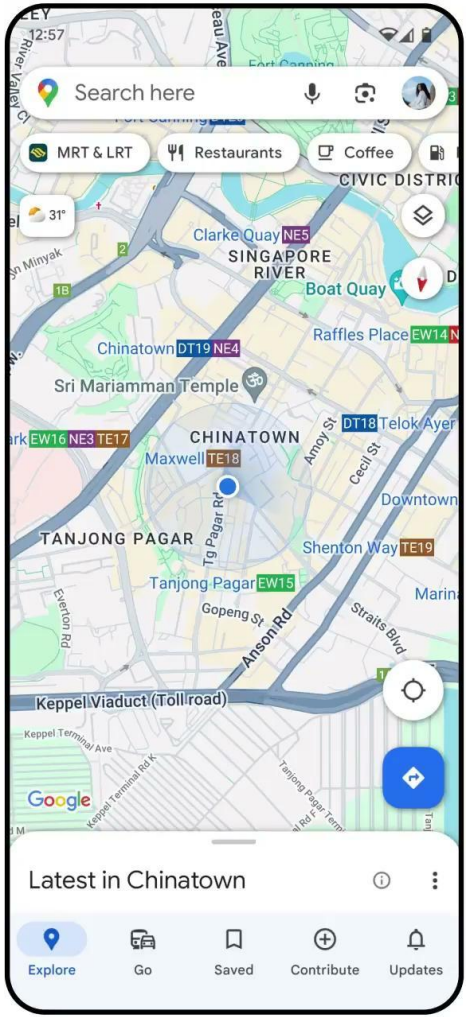
Google Maps

Making Augmented Reality Accessible: A Case Study of *Lens in Maps*

Ohan Oda
ohanoda@google.com

Lens in Maps

A camera based experience in Google Maps that helps **on-the-go** users understand their surroundings and make decisions confidently by showing information in **first person perspective.**

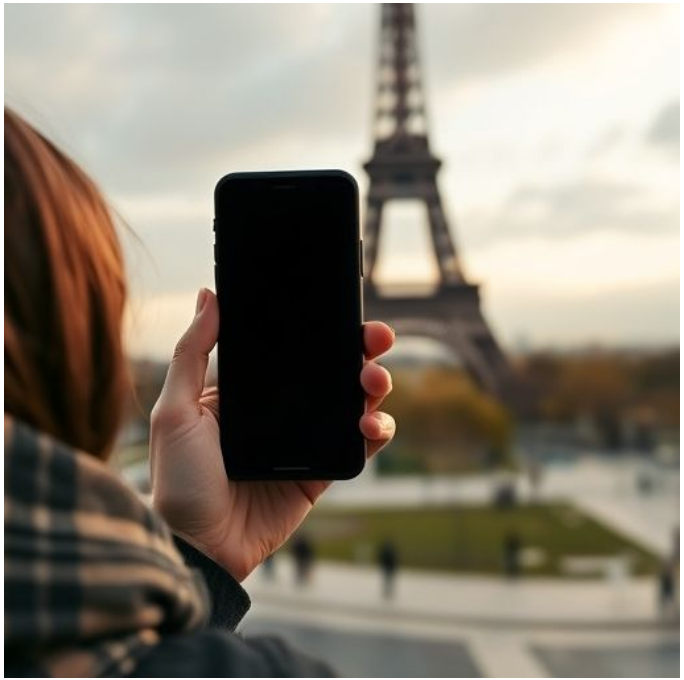

12:57
Search here
MRT & LRT
Restaurants
Coffee
CIVIC DISTRI
31°
Clarke Quay NE5
SINGAPORE RIVER
Boat Quay
Raffles Place EW14
Chinatown DT19 NE4
Sri Mariamman Temple
CHINATOWN
DT18 Telok Ayer
Maxwell TE18
Amoy St
Cecil St
Downtown
TANJONG PAGAR
Tg Pagar Rd
Shenton Way TE19
Tanjong Pagar EW15
Gopeng St
Anson Rd
Straits Blvd
Everton Rd
Keppel Viaduct (Toll road)
Keppel Terminal Ave
Google
Latest in Chinatown
Explore
Go
Saved
Contribute
Updates

The latest Google accessibility updates

Motivation

Motivation

Lens in Maps is useful while traveling



Motivation

But not used much in everyday situation

Motivation

Friction to hold phone up

Motivation

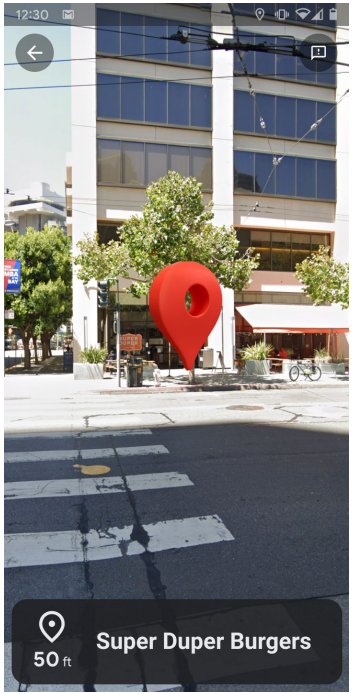
Friction to require location and heading accuracy

Motivation

How can we get more usage & user retention

Ideation

AR Walking Navigation has good retention



Ideation

But it also has the same friction as Lens in Maps

Ideation

Past UX studies indicate AR Walking Navigation can really help users with difficulties reading map

Ideation

Can Lens in Maps help certain users in need?


idea

Research

Attended internal ADI sessions

Research

Last-mile and new places are challenging

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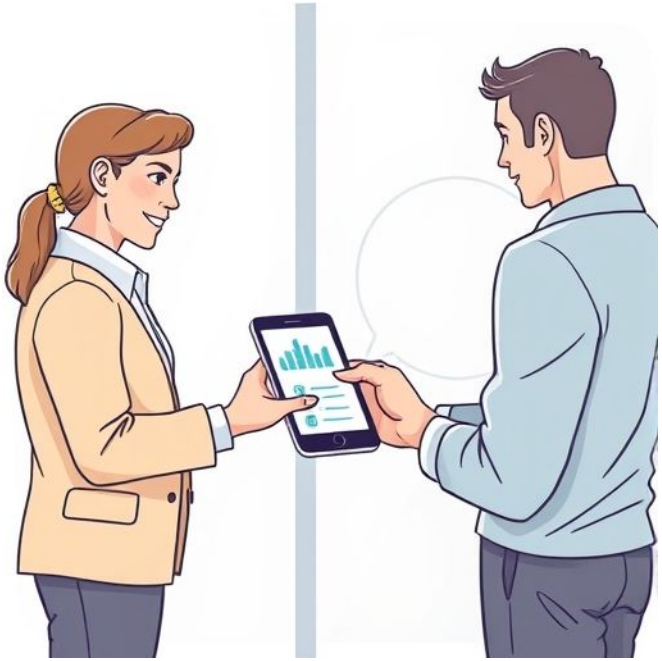
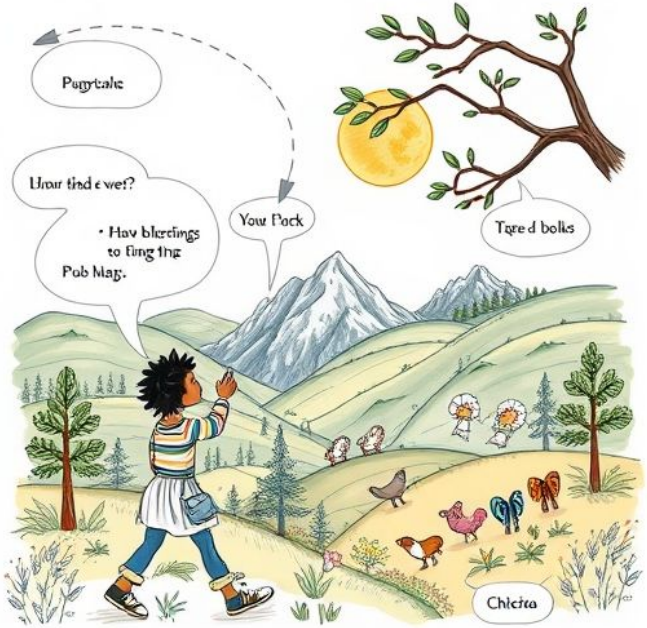
Research

Built prototype and demoed to colleagues



Challenge

Reverse of “A picture is worth 1,000 words”



Challenge

I’m not an accessibility expert

Challenge

There is no guidelines to make AR accessible

Challenge

There is no guidelines to make AR accessible

T.J Maxx, 4.3 stars, Department store, Open, Closes at 11:00 PM

Challenge

I’m not a target user

©Tenor

Challenge

Hard to get leadership buy-in

How I Coped

Reach out to other teams

Challenge

Reverse of “A picture is worth 1,000 words”

I’m not an accessibility expert

There is no guidelines to make AR accessible

How I Coped

Find and test with internal volunteers

Challenge

I’m not a target user

How I Coped

Find and test with external volunteers

Challenge

I’m not a target user

How I Coped

Attend external conferences, like XR Access

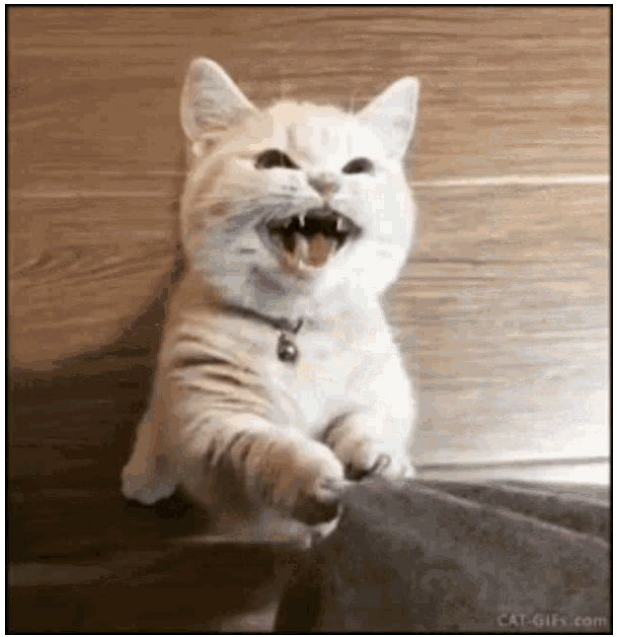
©XR Access

Challenge

I’m not a target user

How I Coped

Get internal attention



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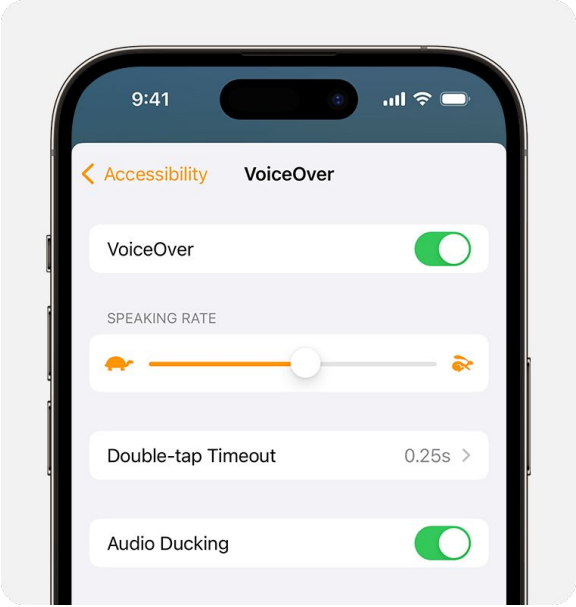
Challenge

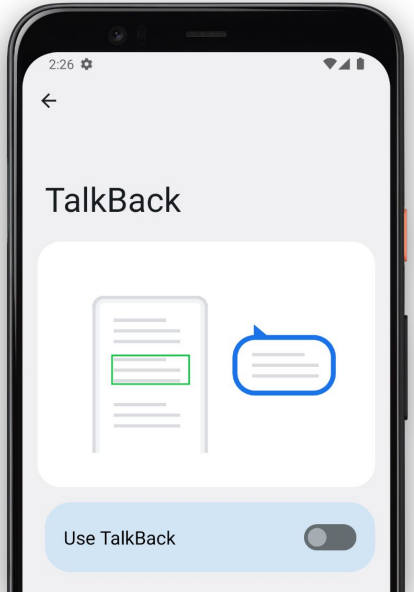
Hard to get leadership buy-in

What Worked Well

Reuse existing familiar technology



iOS



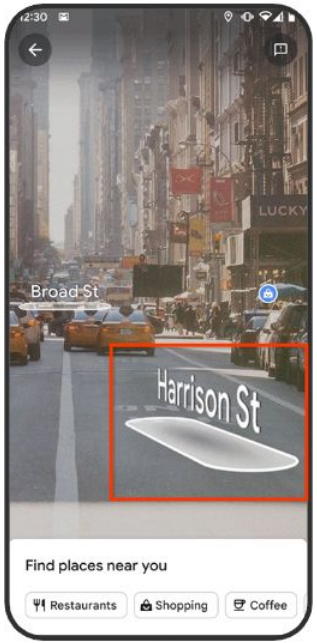
Android

What Worked Well

Focus on one thing at a time

What Worked Well

Focus on one thing at a time



What Worked Well

Use shorter description up front

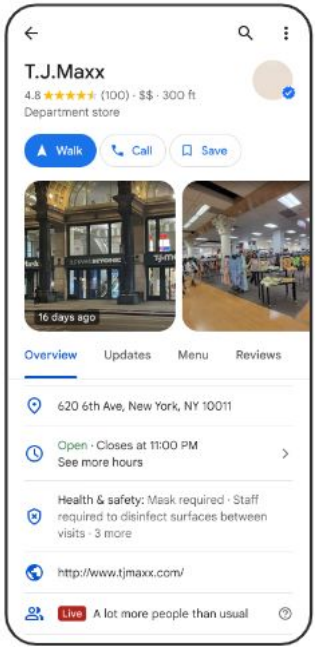
T.J Maxx, 4.3 stars, Department store, Open, Closes at 11:00 PM

T.J Maxx, Department store, 275 ft

What Worked Well

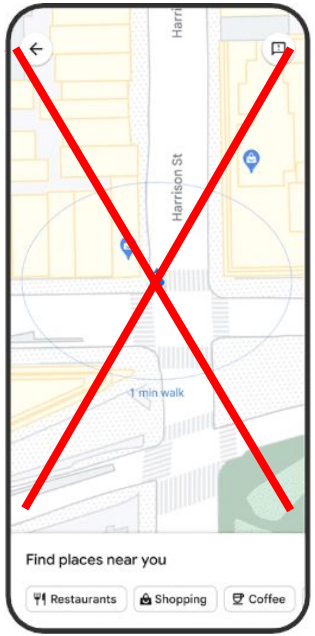
Provide details only when needed

T.J Maxx, Department store, 275 ft, **Double tap for details**



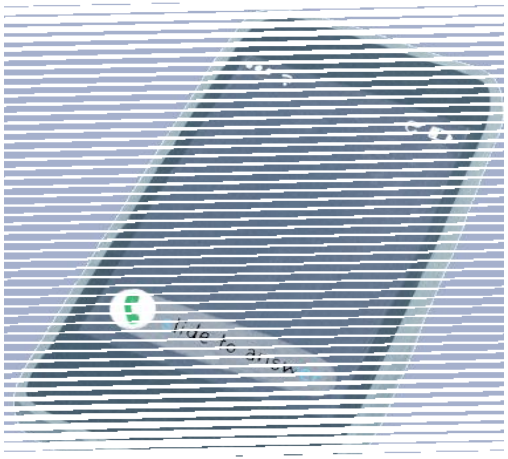
What Worked Well

Only change absolutely necessary things



What Worked Well

Haptic feedback is another source of information



How to Apply

Have a thought whether your AR app can help or entertain blind and low vision users

How to Apply

Ikea app as an example

How to Apply

Make sure making it accessible doesn't mean it will require a lot of changes

How to Apply

Make up front description succinct

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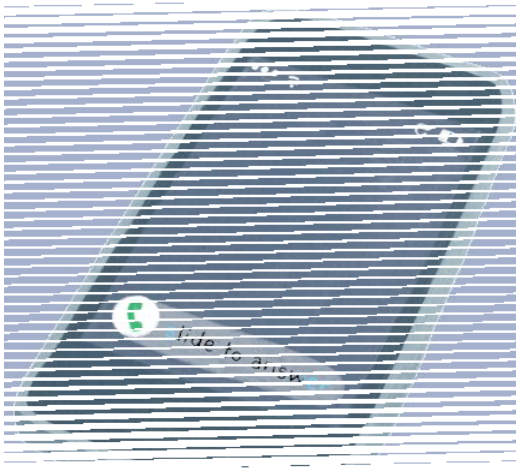
How to Apply

Use haptic feedback wisely



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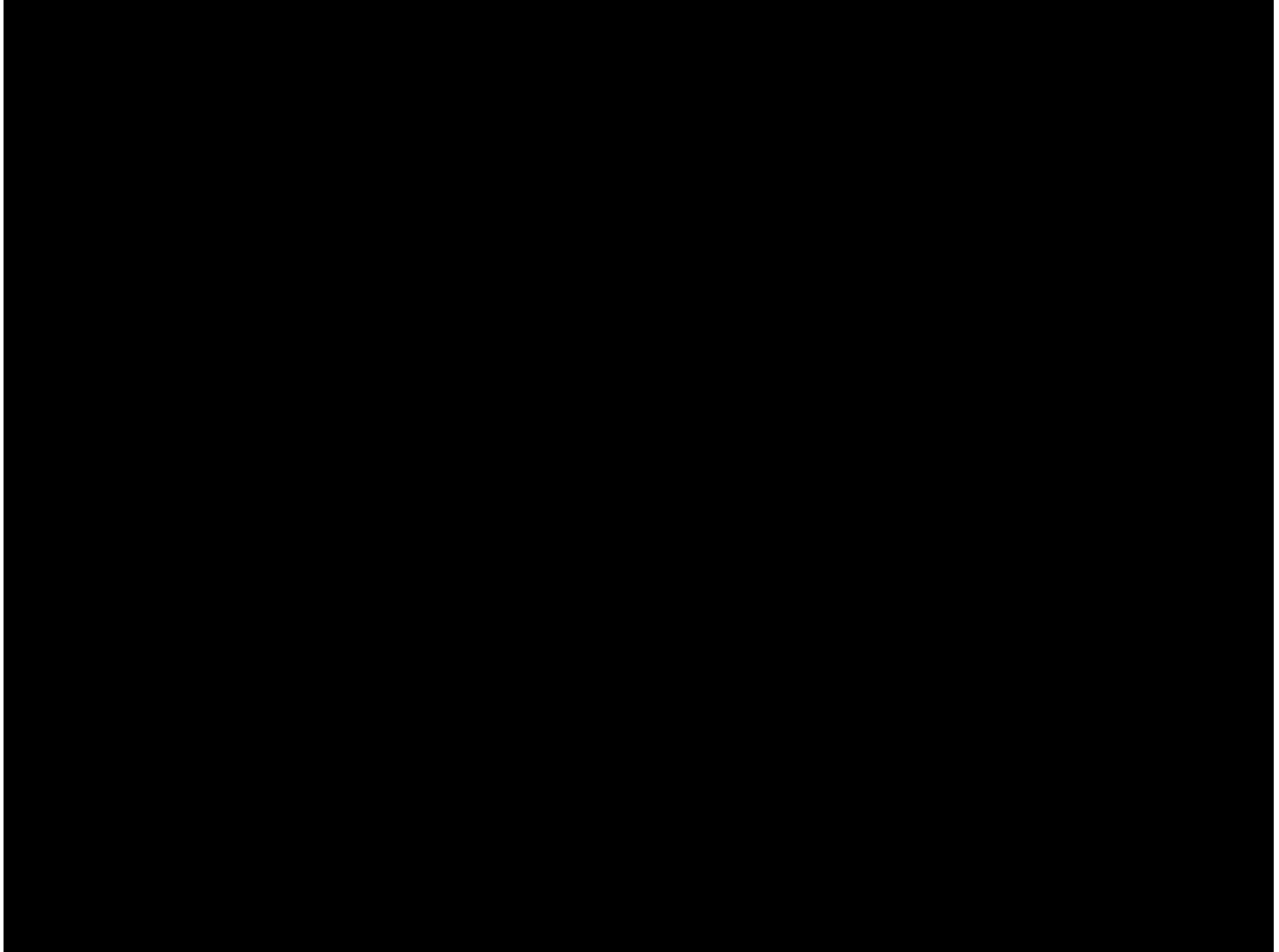

340 million world-wide have moderate-severe visual impairment

Cited from https://www.orbis.org


Prepare your future-self