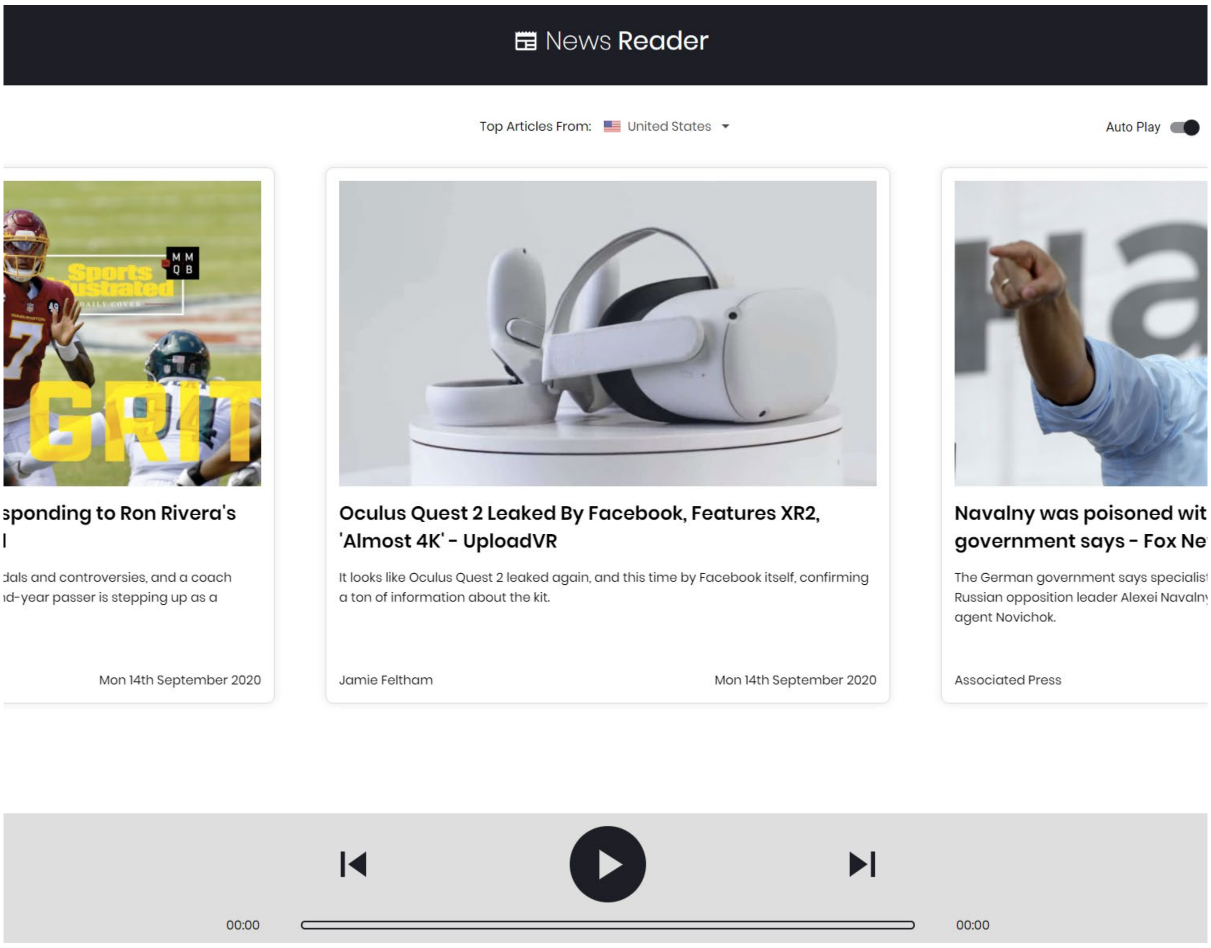
NEWS READER

CAB432 Assignment 1



News Reader

Top Articles From: United States

Auto Play

sponding to Ron Rivera's
l

dals and controversies, and a coach
d-year passer is stepping up as a

Mon 14th September 2020

Oculus Quest 2 Leaked By Facebook, Features XR2, 'Almost 4K' - UploadVR

It looks like Oculus Quest 2 leaked again, and this time by Facebook itself, confirming a ton of information about the kit.

Jamie Feltham

Mon 14th September 2020

Navalny was poisoned wit
government says - Fox Ne

The German government says specialis
Russian opposition leader Alexei Navaln
agent Novichok.

Associated Press

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00:00

Liam Percy

N9959807

16/9/2020

Contents

Introduction

Mashup Purpose & Description

The news is an importance aspect of society. It helps to inform our view of the world, and in response we take action and make choices based on how we perceive the world to be. With the dawn of internet news sites, news media is more available than ever, however there are still those of us that cannot consume it so easily.

Those who struggle with dyslexia may find great difficulty reading through the latest headlines, and the busy commuters amongst us may just not have time to catch up on the news on their way to or from work.

News reader is a web-based application in which users can generate a news feed through publicly available news APIs, and then have these stories read back to them through text to speech synthesis. This allows users to curate stories from areas that are important to them and absorb information in a hands-free way.

Those looking to quickly skim through the day's headlines can simply auto play top news stories from their country of choice, while those looking to delve deeper into a story can access additional information and related content with the tap of a button.

Services Used

Google Cloud Text-To-Speech API

Synthesizes text content and returns a binary audio file, which can then be decoded and stored for playback on the server. Audio can be played back in over 220+ voices across 40+ languages and variants.

Endpoint: https://www.googleapis.com/${my personal google cloud project}

Docs: https://cloud.google.com/text-to-speech/docs

News API

Returns a collection of relevant news articles matching specific criteria/search queries. Examples of these queries include top headlines, country of origin, or the area that an article relates to (sport, business, technology, etc). Attributes within these articles include the title, description, author, publish date, thumbnail image and body content (however body content is limited to 200 characters as a developer)

Endpoint: https://newsapi.org/v2/top-headlines?country=us

Docs: https://newsapi.org/docs

Guardian API

Also returns a collection of relevant news articles matching specific criteria/search queries. This endpoint is very similar to the news API endpoint, in that it will return items such as an articles title, description, author etc, however it also returns the entire body content for a given article, making it very good at finding additional information related to a particular headline, if a user wants to find out more information on a story.

Endpoint: https://content.guardianapis.com/search?q=debates

Docs: https://open-platform.theguardian.com/documentation/

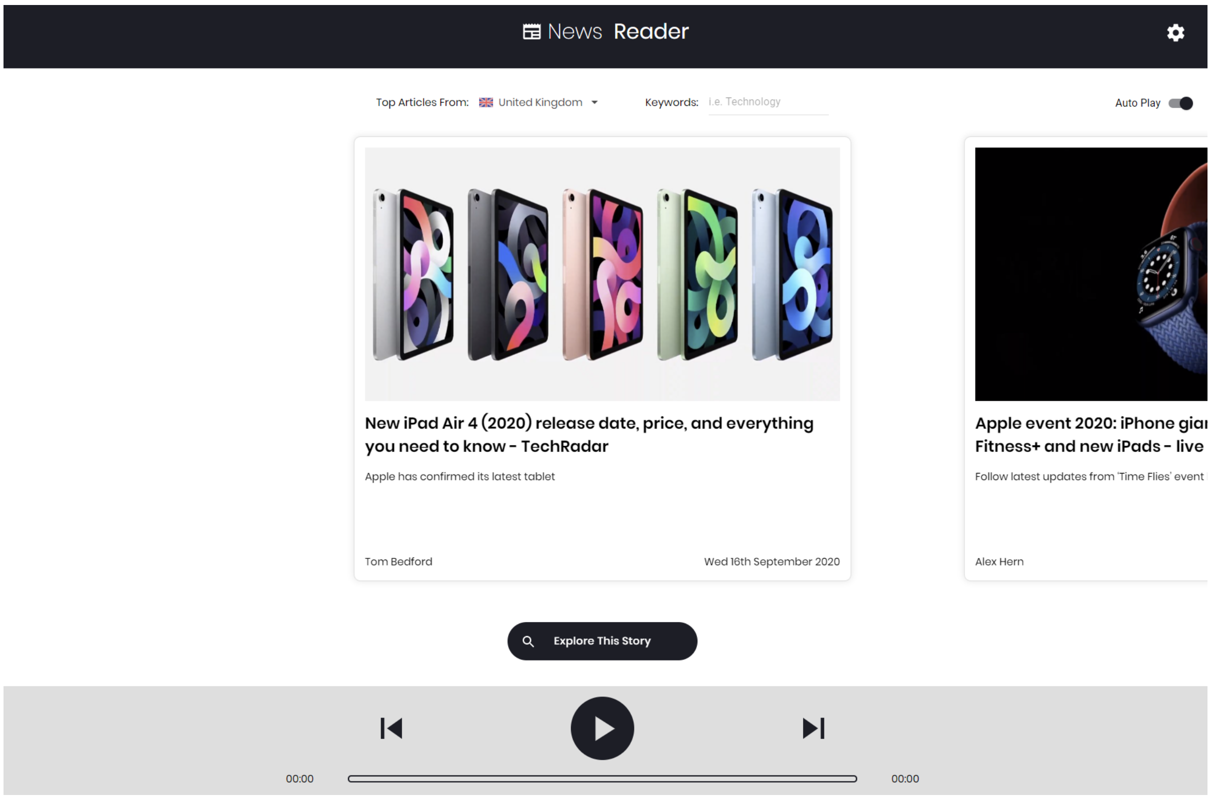
Mashup Use Cases and Services

Hands-Free News Consumption

As a busy commuter, I want to be able to consume to the top news headlines from around the globe, so that I can keep up to date with current affairs on my way to work without the risks involved with phone use while travelling.

To achieve this, a user can simply open the app and press the play button. The top news headlines for their given country are automatically loaded using News APIs top headlines endpoint when they first access the application. As soon as a user presses the play button, the current title and description are passed to Google's text to speech synthesizer API, which generates an audio file for playback.

There are audio controls on the bottom of the page which can be used to pause, resume, or skip to the next article. As long as the user has the auto-play toggle enabled, the application will keep playing news articles once a given article is finished, allowing for the consumption of news headlines in a completely hands-free way.



New iPad Air 4 (2020) release date, price, and everything you need to know - TechRadar

Apple has confirmed its latest tablet

Tom Bedford Wed 16th September 2020

Apple event 2020: iPhone giai
Fitness+ and new iPads - live

Follow latest updates from 'Time Flies' event

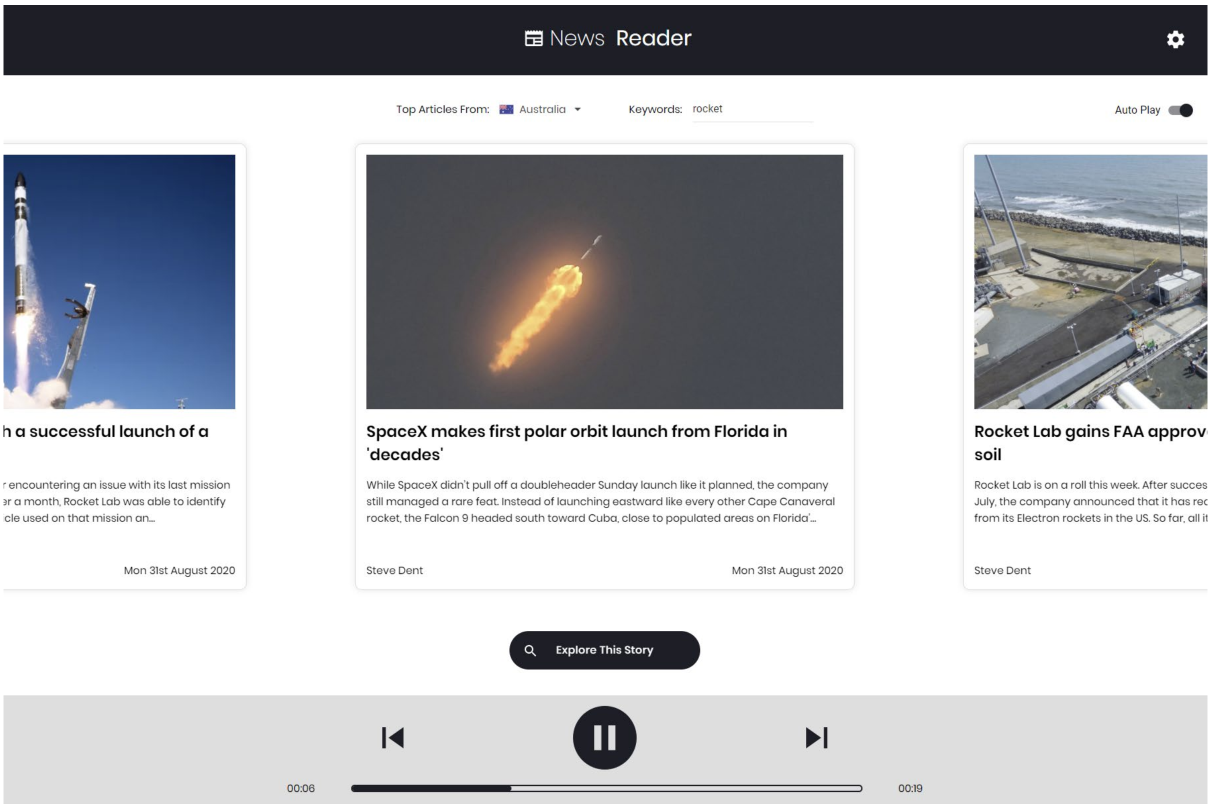
Alex Hern

Figure 1: Auto-play (top-right) enabled and audio controls visible (bottom)

Reading with a Disability

As someone who suffers from dyslexia, I want a way to easily consume news articles of my choosing without having to rely on reading small font, so that I can find out what is happening in the world around me with my disability getting in the way.

Users have access to a keyword search bar at the top of the screen. By typing content into this bar and hitting enter, we re-fetch the articles from News API using their *everything* endpoint and render these articles in the view pane. Similar to our last use case, users have the ability to playback this audio using the Google Cloud Text-To-Speech API, which allows them to consume news content of their choice, without hinderance through their disability.



h a successful launch of a

r encountering an issue with its last mission
er a month, Rocket Lab was able to identify
cle used on that mission an...

Mon 31st August 2020

SpaceX makes first polar orbit launch from Florida in 'decades'

While SpaceX didn't pull off a doubleheader Sunday launch like it planned, the company still managed a rare feat. Instead of launching eastward like every other Cape Canaveral rocket, the Falcon 9 headed south toward Cuba, close to populated areas on Florida'...

Steve Dent Mon 31st August 2020

Rocket Lab gains FAA approv
soil

Rocket Lab is on a roll this week. After succes
July, the company announced that it has rec
from its Electron rockets in the US. So far, all it

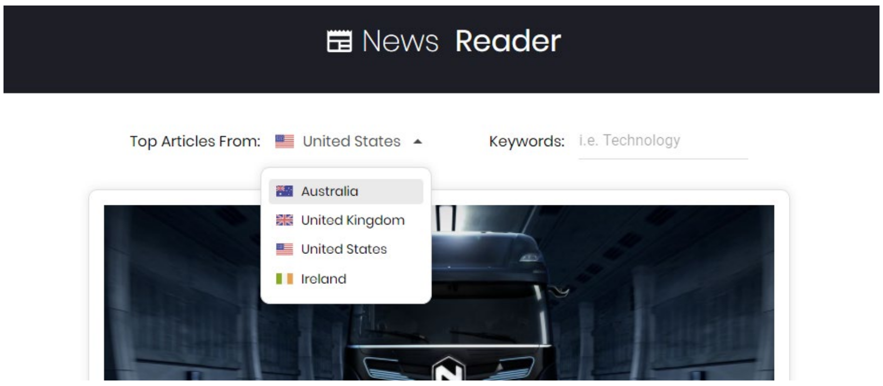
Steve Dent

Figure 2: Keyword added (top) and audio playback in progress (bottom)

International Headlines/Speaker

As an international user of this app, I want access to stories in my own country, and the ability to have these stories in an accent more familiar to me, so that the content I am consuming is both more relevant and familiar to me.

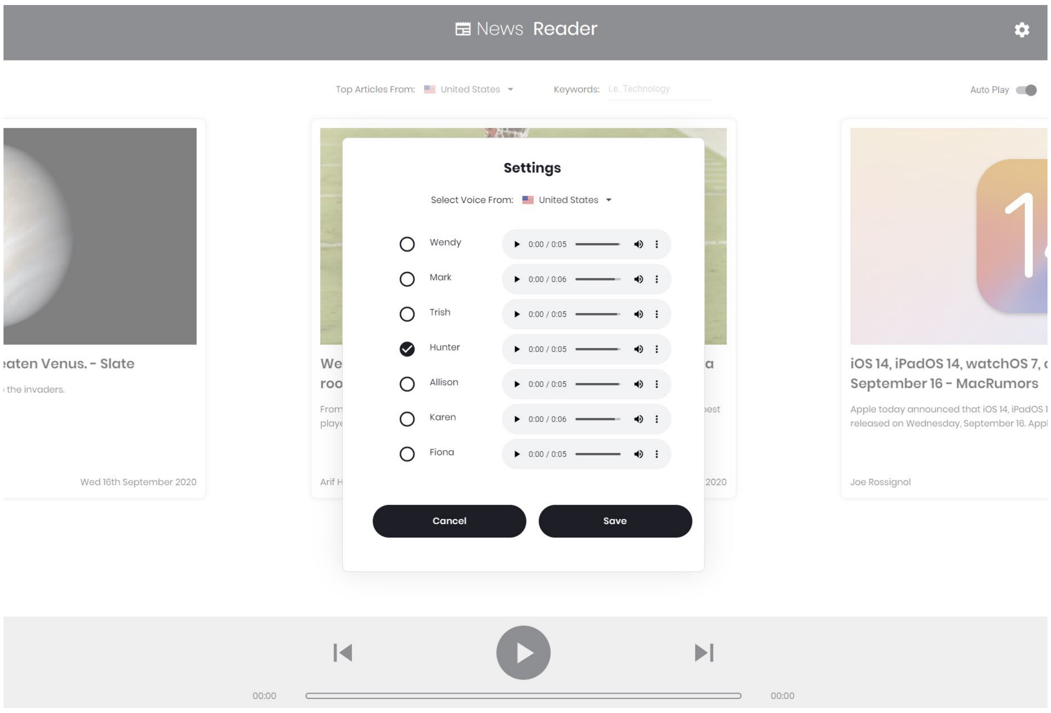
To achieve this, the user is provided with a dropdown menu where they can select top articles from Australia, Ireland, USA and the UK. On selecting a new country, the top headlines will be re-fetched through News API using the country parameter to specify where we want to retrieve the headlines from.



Top Articles From: United States

Figure 3: Country selection

Additionally, the settings cog in the top right of the screen can be used to select a speaker for these headlines. When a user selects a new speaker, each subsequent audio file will be generated through Google's text to speech API, using this updated parameter.



Top Articles From: United States

Select Voice From: United States

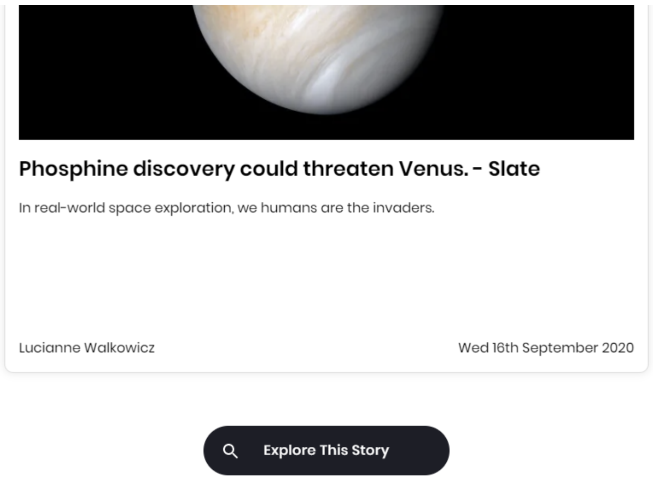
Selected voice: Hunter

Figure 4: Settings cog (top right) and speaking settings menu with previews

Related Articles/Full Story Reader

As someone with a very keen interest in a particular news story, I want to be able to view and listen to related articles, so that I can fully understand a given topic in all its depth.

To achieve this, a button is rendered on the home screen that allows a user to access content related to the currently active article. Once pressed, the user will be routed to a second, *explore* page within the application, which takes the title of the original query, and passes it to the Guardian's API service, which then returns related content using the search endpoint. These articles can be previewed much in the same way as headlines on the main page, however the user also has access to listen to the entire story.

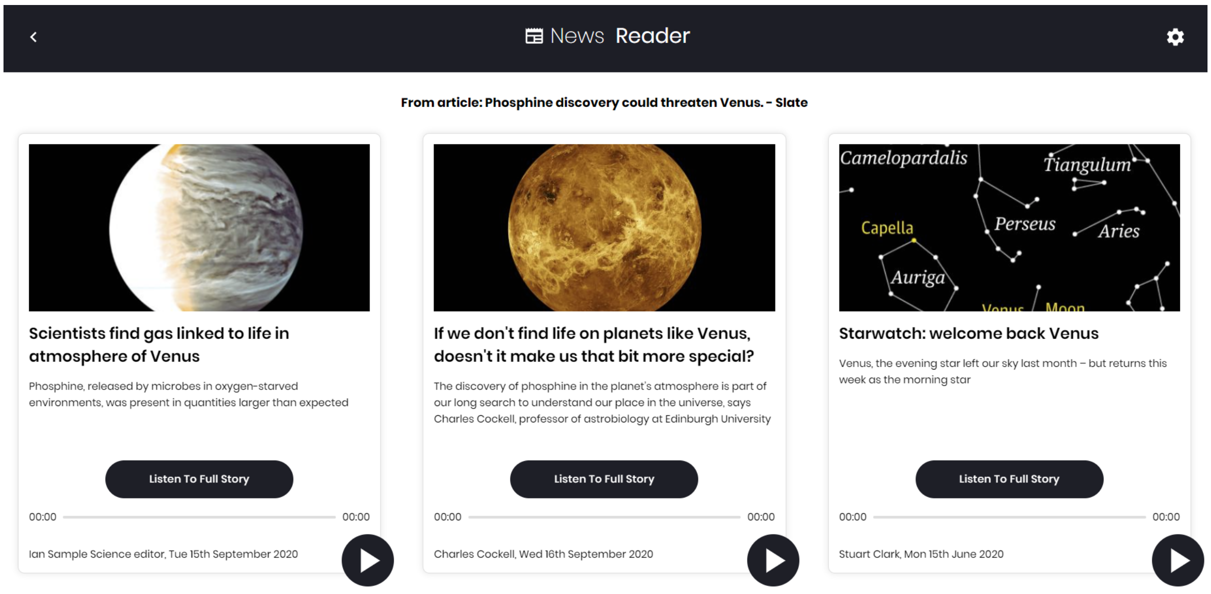


Phosphine discovery could threaten Venus. - Slate

In real-world space exploration, we humans are the invaders.

Lucianne Walkowicz — Wed 16th September 2020

Figure 5: Explore full story button



From article: Phosphine discovery could threaten Venus. - Slate

Scientists find gas linked to life in atmosphere of Venus

Phosphine, released by microbes in oxygen-starved environments, was present in quantities larger than expected

Ian Sample Science editor, Tue 15th September 2020

If we don't find life on planets like Venus, doesn't it make us that bit more special?

The discovery of phosphine in the planet's atmosphere is part of our long search to understand our place in the universe, says Charles Cockell, professor of astrobiology at Edinburgh University

Charles Cockell, Wed 16th September 2020

Starwatch: welcome back Venus

Venus, the evening star left our sky last month – but returns this week as the morning star

Stuart Clark, Mon 15th June 2020

Figure 6: Explore page

Technical Breakdown

Architecture and Data Flow

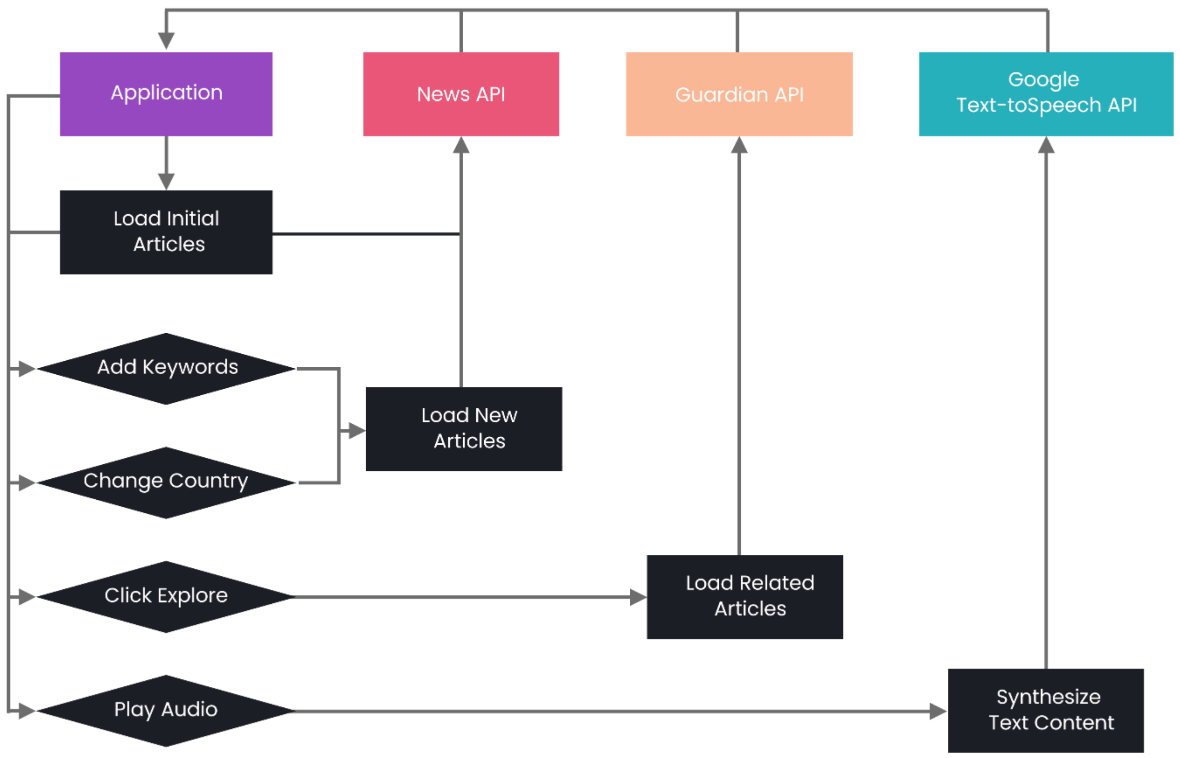


Figure 7: Architecture/Data Flow Diagram

Using the figure above as a guide, we can better understand the system architecture and data flow. The application was developed using an Express.js backend. When a user first connects to our application and hits the server at the top-level domain, they will be served static content from the client side folder.

```
// Express for server-side functionality
const express = require("express");

// Define application
const app = express();

// Define port
const port = 3000;

// Serve static assets built from the clientside
app.use(express.static("../client/build"));


app.use((req, res) => {
    res.sendFile(path.join(__dirname, "../client/build", "index.html"));
});

app.listen(port, () => console.log(`Server started on port ${port}`));
```

Figure 8: Setting Up Express Application

The client-side is rendered using the React library/framework. The entry point for static content is app.tsx. This component sends the user to the homepage or the explore page, depending on the page route, using React Router.

```
export default function App() {
    return (
        <div className="App">
            <Router>
                <Switch>
                    <Route path="/explore" component={Explore} />
                    <Route path="/" component={Home} />
                </Switch>
            </Router>
        </div>
    );
}
```

Figure 9: App.tsx component

At this point, it is important to understand the file structure of the application itself. This can be seen below:

```
news-reader
        server
                server.js
        client
                app.tsx
                src
                        styles
                        components
                        pages
                public
                        audio
                        preview
```

Figure 10: Application file structure.

As we can observe, the explore and home page are located in the pages subfolder within the client-side. Additionally, we have a components folder, for storing all of the buttons, cards, and fields used within the application, and a styles folder, which specifies how these components will look.

Using the top level route, the user will be directed to the home page. As you can see in figure 7 above, the application will immediately load the initial articles to display, using the News API endpoint. This is achieved by fetching data from the server side /api/news/headlines endpoint, which takes in a country and search parameter, and returns an array of articles with a title, description, author, image URL and publish date.

```
// Gets articles from the server-side
function useArticles(country: string, search: string) {
    const [articles, setArticles] = useState<IArticle[]>([]);
    useEffect(() => {
        if (search) {
            axios
                .get(`./api/news/everything?search=${search}`)
                .then((d) => setArticles(d.data))
                .catch((e) => alert("Cloud not load articles"));
        } else {
            axios
                .get(`./api/news/headlines?country=${country}${getSearch(search)}`)
                .then((d) => setArticles(d.data))
                .catch((e) => alert("Cloud not load articles"));
        }
    }, [country, search]);
    return articles;
}
```

Figure 11: Get articles client-side

```
const newsAPIKey = "0f4e8edcce654d779a4315dab0be7e87";

app.get("/api/news/headlines", async (req, res) => {
    try {
        const { search, country } = req.query;

        const searchQ = search ? `&q=${search}` : "";
        const countryQ = country ? `&country=${country}` : "";

        const response = await axios.get(`https://newsapi.org/v2/top-
headlines?apiKey=${newsAPIKey}${searchQ}${countryQ}`);

        const data = response.data.articles.map((article) => {
            const { title, description, author, urlToImage, publishedAt } = article;
            return { title: title, description: description, author: author, imageURL: urlToImage
, published: publishedAt };
        });

        return res.json(data);
    } catch (error) {
        return res.send(error);
    }
});
```

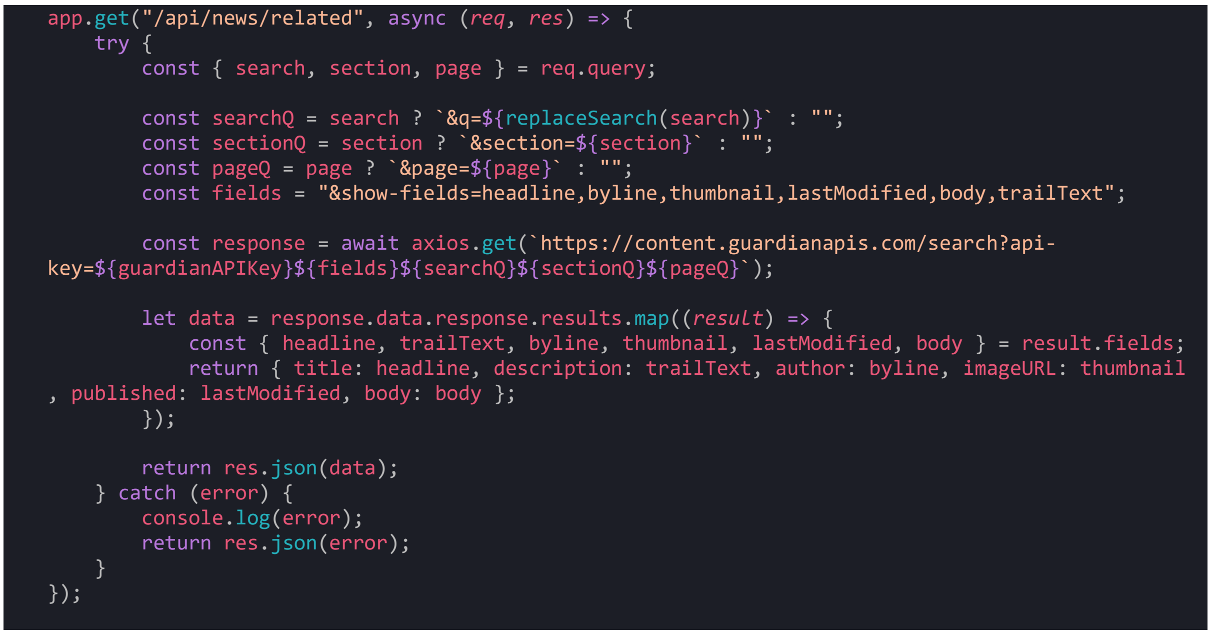
Figure 12: Get articles server-side

Once these articles are loaded, the user can either add keywords, change the retrieval country, click the explore article button, or play audio. Both updating keywords/country will re-trigger getting articles from the server-side, just with different parameters.

Clicking the explore button will route the user to the explore page, passing with it the current state of the speaker (accent), and the article that we want to find related stories for. This will then trigger a new request to the Guardian API using the /api/news/related endpoint.

```
 // Go to the explore page
function routeExplore() {
    const title = currentArticle ? currentArticle.title : articles[0].title;
    history.push({ pathname: "/explore", state: { title: title, code: code, name: name } });
}
```

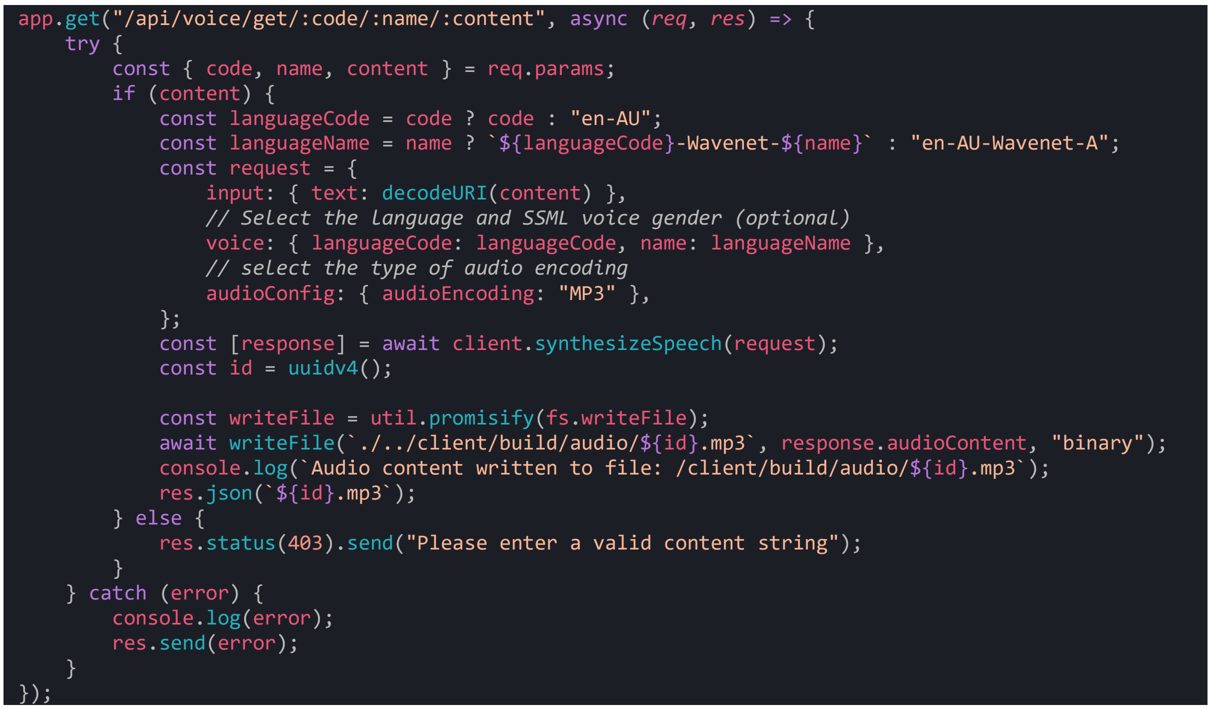
Figure 12: Re-direct to explore page



```
app.get("/api/news/related", async (req, res) => {
    try {
        const { search, section, page } = req.query;

        const searchQ = search ? `&q=${replaceSearch(search)}` : "";
        const sectionQ = section ? `&section=${section}` : "";
        const pageQ = page ? `&page=${page}` : "";
        const fields = "&show-fields=headline,byline,thumbnail,lastModified,body,trailText";

        const response = await axios.get(`https://content.guardianapis.com/search?api-
key=${guardianAPIKey}${fields}${searchQ}${sectionQ}${pageQ}`);

        let data = response.data.response.results.map((result) => {
            const { headline, trailText, byline, thumbnail, lastModified, body } = result.fields;
            return { title: headline, description: trailText, author: byline, imageURL: thumbnail
, published: lastModified, body: body };
        });

        return res.json(data);
    } catch (error) {
        console.log(error);
        return res.json(error);
    }
});
```

Figure 13: Get related articles server-side

Finally, the user can play audio. This is achieved by fetching voice content from the /api/voice/get/:code/:name/:content endpoint, which takes a user specified voice country code and name i.e. *en-AU* and *en-AU-Wavenet-A*, as well as the particular text content that the user wishes to listen to. This will then write the content to an mp3 file in the client-side public/audio folder and return the path to this folder to the client-side. The audio file can then be played back.



```
app.get("/api/voice/get/:code/:name/:content", async (req, res) => {
    try {
        const { code, name, content } = req.params;
        if (content) {
            const languageCode = code ? code : "en-AU";
            const languageName = name ? `${languageCode}-Wavenet-${name}` : "en-AU-Wavenet-A";
            const request = {
                input: { text: decodeURI(content) },
                // Select the language and SSML voice gender (optional)
                voice: { languageCode: languageCode, name: languageName },
                // select the type of audio encoding
                audioConfig: { audioEncoding: "MP3" },
            };
            const [response] = await client.synthesizeSpeech(request);
            const id = uuidv4();

            const writeFile = util.promisify(fs.writeFile);
            await writeFile(`./../client/build/audio/${id}.mp3`, response.audioContent, "binary");
            console.log(`Audio content written to file: /client/build/audio/${id}.mp3`);
            res.json(`${id}.mp3`);
        } else {
            res.status(403).send("Please enter a valid content string");
        }
    } catch (error) {
        console.log(error);
        res.send(error);
    }
});
```

Figure 14: Get audio server-side

Deployment and the Use of Docker

Once the application was ready for production, a Docker file was created to install node modules, build the client-side, expose the required port and start the server. The Docker file uses the Node v12 base image to setup the initial environment, and then listens on port 3000 and thus this port was exposed within the docker container.

```
# Using the Node version 12 base image
FROM node:12

# Copy the current directory
COPY . /src

# From the client-side directory
WORKDIR /src/client
# Install node modules
RUN npm install
# Build the application
RUN npm run-script build

# From the server-side directory
WORKDIR /src/server
# Install node modules
RUN npm install

# Expose the container on port 3000
EXPOSE 3000

# Start the server
CMD ["npm", "start"]
```

Figure 15: Docker file

Test Plan

Task	Expected Outcome	Result	Appendix
Get Initial Articles	Articles are displayed on the home page	Pass	1
Play Audio	Audio is loaded and begins playing	Pass	2
Pause Audio	Audio is paused and can be resumed	Pass	3
Previous/Next	Article is skipped and next article is displayed	Pass	N/A
Uncheck AutoPlay	Audio stops once finished (does not load next)	Pass	4
Search Keywords	Articles are re-fetched using keywords	Pass	5
Select Country	Articles are re-fetched using country	Pass	6
Select Country While Playing Audio	Audio stops playing, new articles are fetched. Will continue playing if auto-play is enabled	Pass	N/A
Select Speaker	Audio playback occurs using a different voice	Pass	7
Select Speaker While Playing Audio	Subsequent playback will occur using new voice	Pass	N/A
Click Explore Article	Related articles are displayed on explore page	Pass	8
Handle No Article Matches	Display popup message, application continues.	Pass	9
Handle Article Error	Display popup message, application continues.	Pass	9
Handle Speech URI Error	Display popup message, application continues.	Pass	10

Difficulties

Throughout the development of this application, there was one persistent error that kept occurring: URI Encoding issues. Because each of these articles may use a number of characters that are generally reserved from URI encoding functions, express would frequently return URI malformation errors. To resolve these problems, a function was created on the server-side, which replaces several characters with either blank space, or a spoken component (i.e. percentage).

Additionally, there was the issue of handling storage and file management. As this is a simple application, I did not rely on any data-storage solution to keep hold of mp3 files once generated. To produce files, a unique ID was created and set as the filename for a given audio track. So as not to completely overrun the server with audio-files, these files are deleted after playback has finished or the next button is clicked, however sometimes a user will exit the application because this event is triggered. A better solution would be to store the files in a data-base with a key-value pair, and do a lookup on an article title in said database before converting text content to speech. This will not only improve the performance of the audio-playback, but also negate these file handling issues.

Finally, a compromise had to be made regarding the original intended functionality of the application. Initially, it was going to be possible to play an entire headline, as well as related stories, however News API restricts the body content to 200 characters unless you are using the paid version of their service. For this reason, full articles can only be read using the explore page, and not the home page.

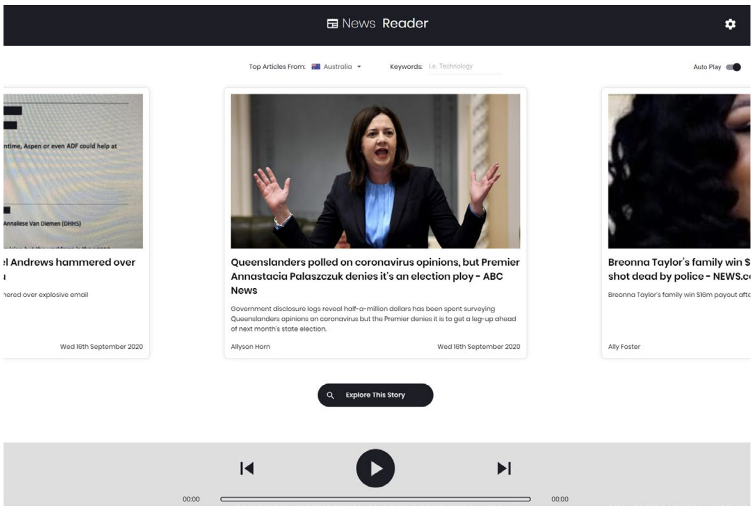
Extensions

Originally, I had planned to implement a translation feature as well, so that an international user could playback articles in their native language, or so someone could read foreign news articles. To implement this, it would simply be a matter of selecting a language output in settings, and then running checks on content to find if they are coming from international sources or not. At that point, we could call Google's translate API service, much in the same way we are using their text-to-speech service. This should not have to drastic of a performance reduction on the application.

User Guide

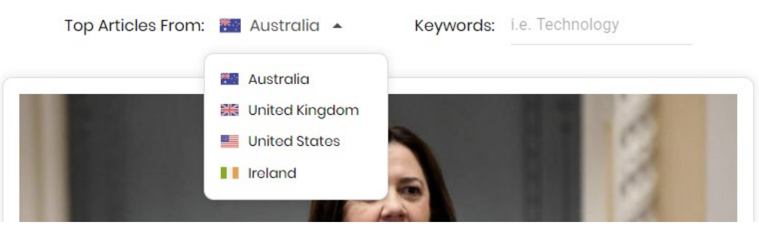
Home Screen

Here you can see todays top articles from your country of choice. There are a number of important components found on this page. Let's take a look at them now.


News Reader
Top Articles From: Australia
Keywords: i.e. Technology
Auto Play
Queenslanders polled on coronavirus opinions, but Premier Annastacia Palaszczuk denies it's an election ploy - ABC News
Allyson Horn
Wed 16th September 2020
Breonna Taylor's family win $
shot dead by police - NEWS.c
Ally Foster
Explore This Story
00:00
00:00

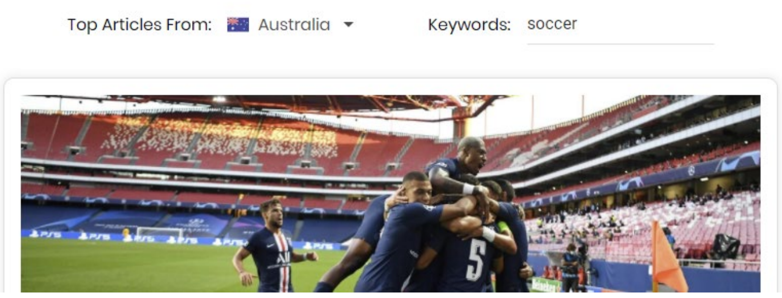
Country Select

You can use the country selection dropdown to select a country to retrieve top headlines from. Upon selecting a new country, articles will be re-populated based on your new country parameter.



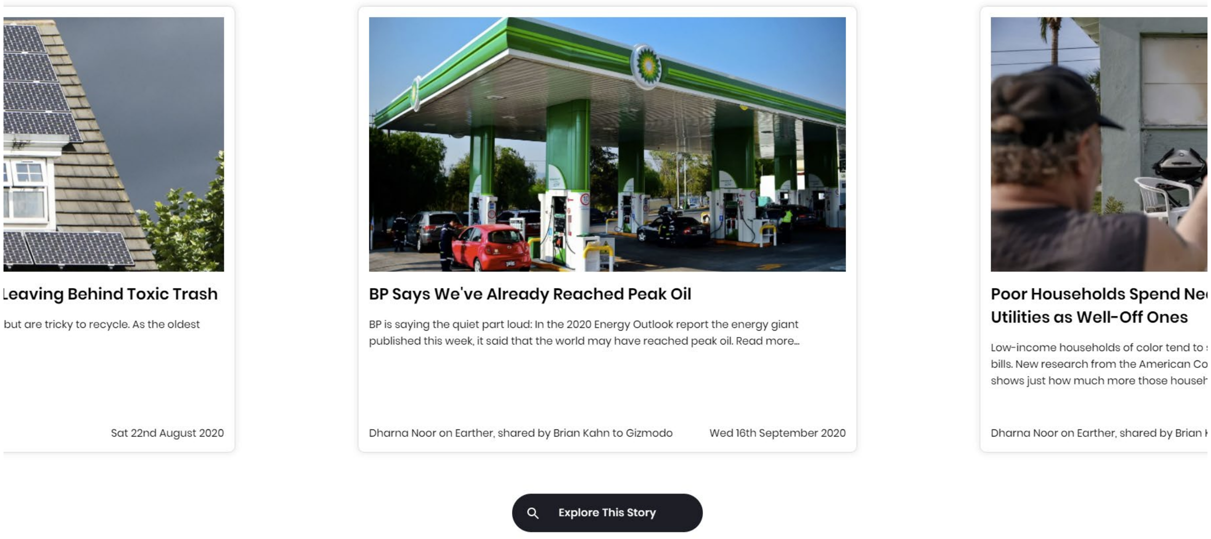
Keyword Search

You can use the keyword search field to specify the types of articles you would like to search for. Simply type in keywords and hit enter. Articles will be re-populated based on your new search terms.



Article Carousel

The article carousel displays all of the articles matching your current search criteria. You can navigate the carousel using the audio controls.



Leaving Behind Toxic Trash

but are tricky to recycle. As the oldest

Sat 22nd August 2020

BP Says We've Already Reached Peak Oil

BP is saying the quiet part loud: In the 2020 Energy Outlook report the energy giant published this week, it said that the world may have reached peak oil. Read more...

Dharna Noor on Earther, shared by Brian Kahn to Gizmodo Wed 16th September 2020

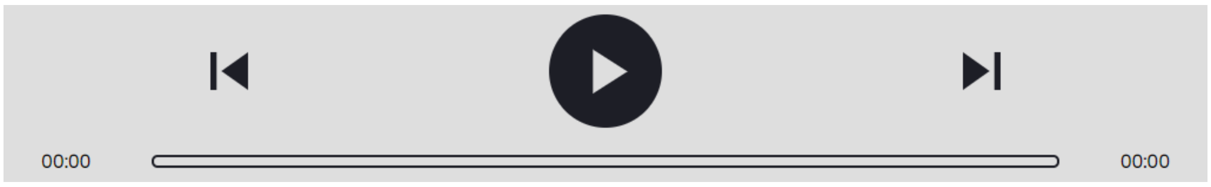
Poor Households Spend Ne
Utilities as Well-Off Ones

Low-income households of color tend to
bills. New research from the American Co
shows just how much more those househ

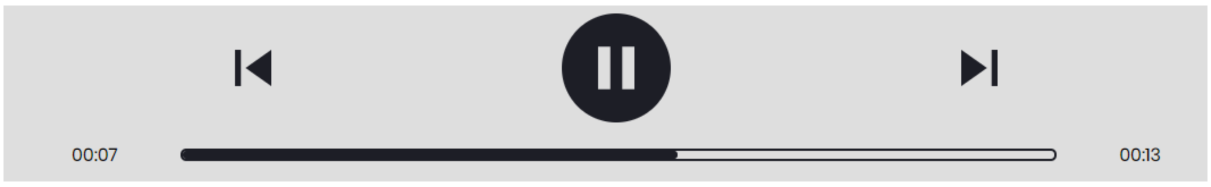
Dharna Noor on Earther, shared by Brian

Audio Controls

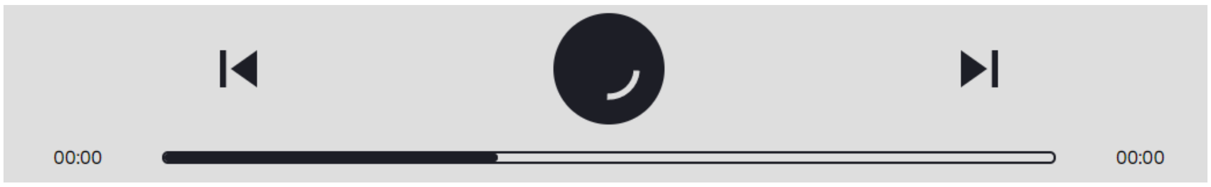
The audio controls allow you to play, pause, skip and return to a previous news article you are listening to. Additionally, there is a status bar on the bottom displaying the elapsed time (left), total duration (right) and progress for the currently loaded audio file. The center will change depending on the state of the audio (playing/paused/loading)



Audio paused/not started



Audio playing



Audio loading

Auto Play Switch

If switched on, the auto play switch allows you to automatically play the next article once the current article finishes playing. Alternatively, if switched off, when an article finishes playing, playback will halt until you enter your next action.

Auto play ON

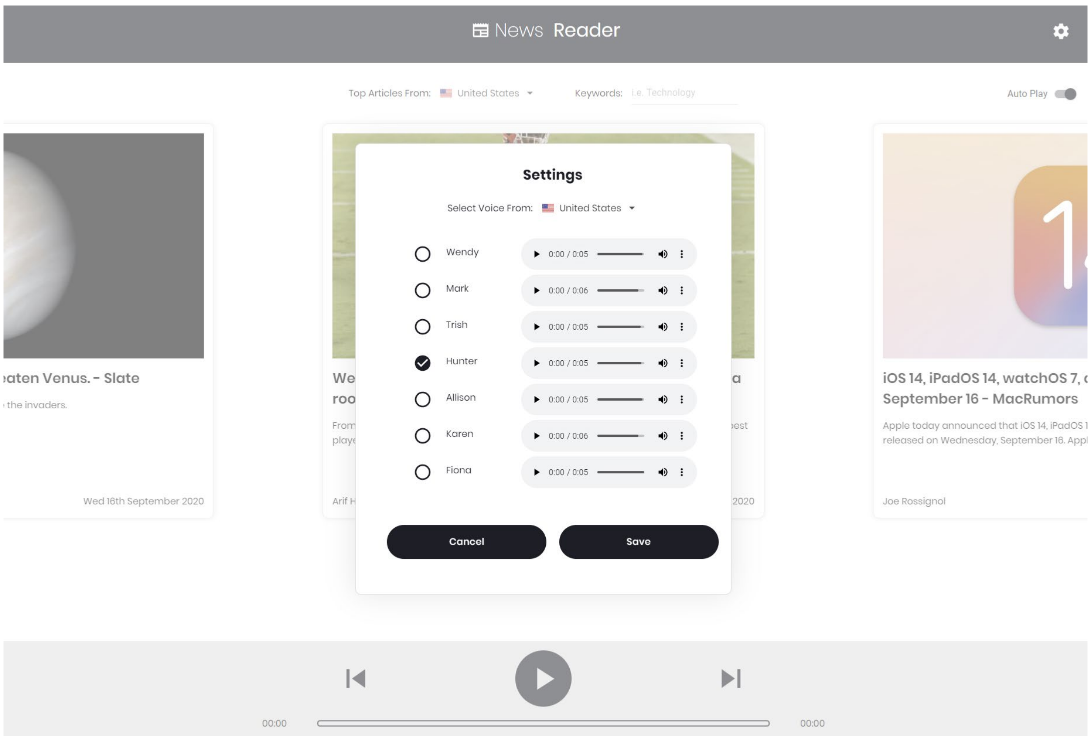
Auto play OFF

Settings Button

The setting button allows you to change the accent of the synthesized audio content. It is accessible via the settings cog in the top right of the screen. Upon clicking this button, a modal will appear containing a drop-down menu and a list of voices.

The drop-down menu allows you to specify which country you would like to select a voice drop. Each voice has a name and associated preview file. You can preview each voice and the choose the specific voice you would like to hear audio from using the checkboxes next to each entry. There are 17 voices in total, from Australia, the UK and the USA.

Upon selecting your voice of choice, hit the save button at the bottom of the popup, or alternatively, press cancel to close the popup without saving.


News Reader
Top Articles From: United States
Keywords: i.e. Technology
Auto Play
eaten Venus. - Slate
the invaders.
Wed 16th September 2020
iOS 14, iPadOS 14, watchOS 7,
September 16 - MacRumors
Apple today announced that iOS 14, iPadOS 1
released on Wednesday, September 16. Appl
Joe Rossignol
00:00
00:00

Settings

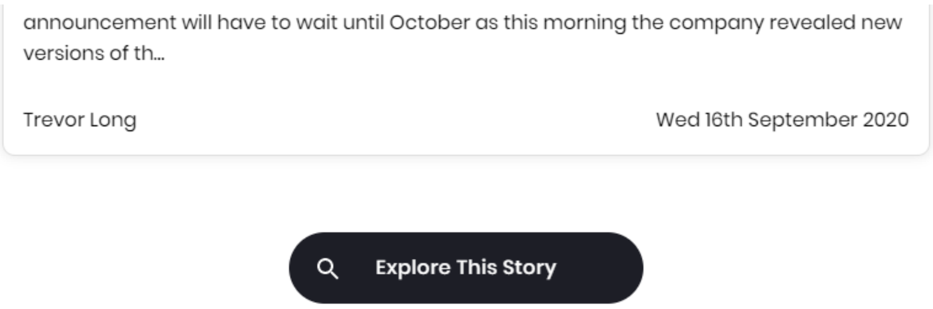
Select Voice From: United States

○	Wendy	0:00 / 0:05
○	Mark	0:00 / 0:06
○	Trish	0:00 / 0:05
✓	Hunter	0:00 / 0:05
○	Allison	0:00 / 0:05
○	Karen	0:00 / 0:06
○	Fiona	0:00 / 0:05

Cancel Save

Explore Button

The explore button allows you to view additional items related to your active article. Clicking the button will take you to the explore page.



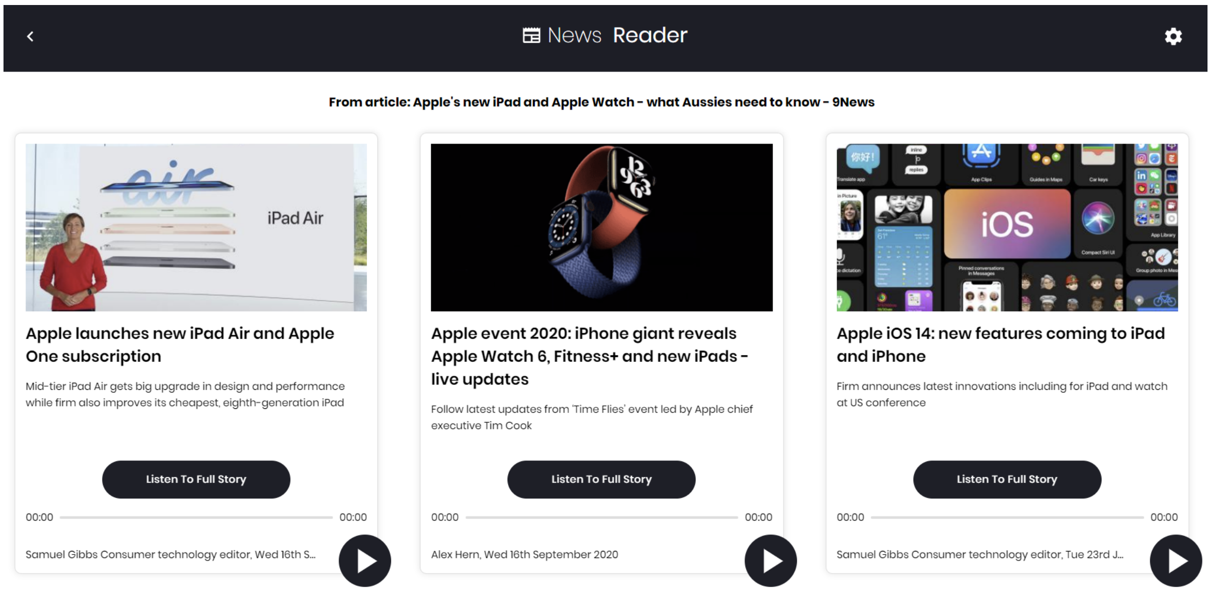
announcement will have to wait until October as this morning the company revealed new versions of th...

Trevor Long	Wed 16th September 2020

Explore Page

The explore page shows a list of articles related to the given article you selected when pressing the explore button. The associated headline is displayed at the top of the screen, and all related articles exist in an isolated explore card.

You can still access the settings menu from this page, and return to the home screen by clicking the back button in the top left of the header.



From article: Apple's new iPad and Apple Watch - what Aussies need to know - 9News

Apple launches new iPad Air and Apple One subscription

Mid-tier iPad Air gets big upgrade in design and performance while firm also improves its cheapest, eighth-generation iPad

Listen To Full Story

00:00 00:00

Samuel Gibbs Consumer technology editor, Wed 16th S...

Apple event 2020: iPhone giant reveals Apple Watch 6, Fitness+ and new iPads - live updates

Follow latest updates from 'Time Flies' event led by Apple chief executive Tim Cook

Listen To Full Story

00:00 00:00

Alex Hern, Wed 16th September 2020

Apple iOS 14: new features coming to iPad and iPhone

Firm announces latest innovations including for iPad and watch at US conference

Listen To Full Story

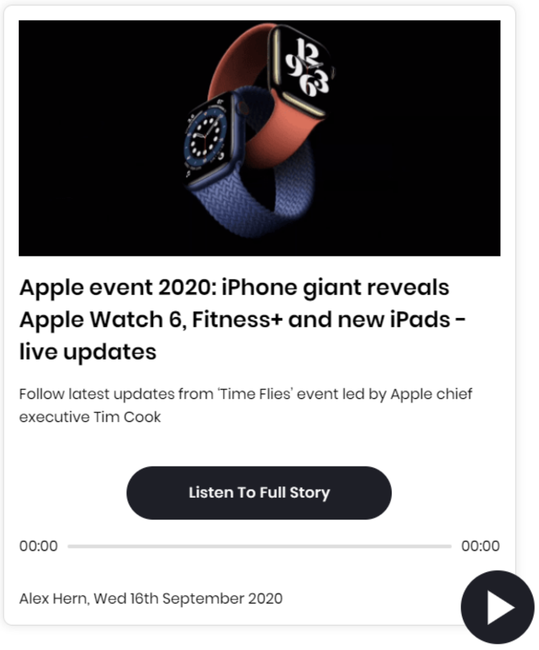
00:00 00:00

Samuel Gibbs Consumer technology editor, Tue 23rd J...

Explore Card

The explore card contains much of the same information we saw on each article in the article carousel, with the slight difference that each card has its own player, and a button in which you can listen to the articles full body content.

Click on the article to hear the headline and description or click on the full story button to hear everything. Once again, the elapsed time and total duration will be shown in the progress bar, and the button icon will change depending on the state of the article (playing, paused or loading)

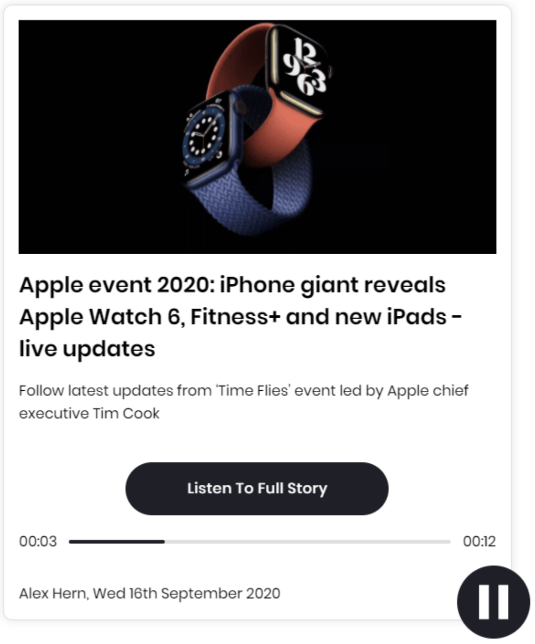


Apple event 2020: iPhone giant reveals Apple Watch 6, Fitness+ and new iPads - live updates

Follow latest updates from 'Time Flies' event led by Apple chief executive Tim Cook

Alex Hern, Wed 16th September 2020

Explore paused/not started



Apple event 2020: iPhone giant reveals Apple Watch 6, Fitness+ and new iPads - live updates

Follow latest updates from 'Time Flies' event led by Apple chief executive Tim Cook

Alex Hern, Wed 16th September 2020

Explore playing

Statement on Assignment Demo

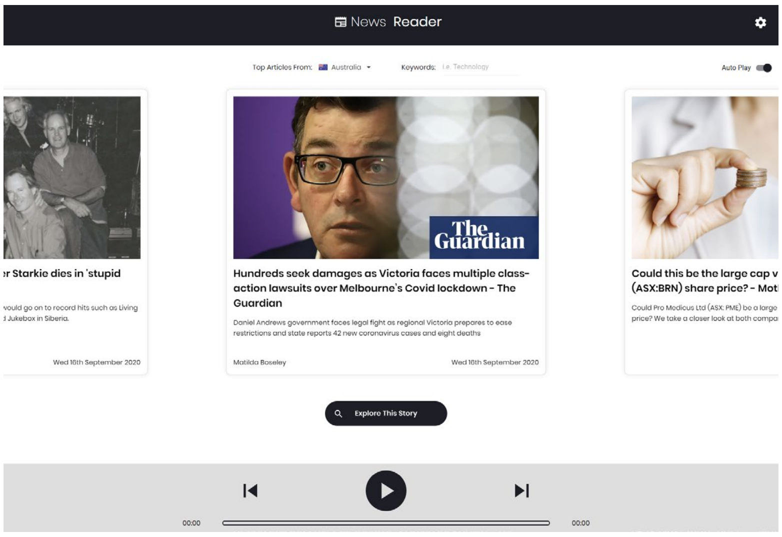
I will be submitted a video demonstration to go over the use of this application.

The video can be found here:

https://youtu.be/cf_qHIKrBAo

Appendices

1 Get Articles


News Reader

Top Articles From: Australia

Keywords: i.e. Technology

Auto Play

r Starkie dies in 'stupid

vould go on to record hits such as Living
l Jukebox in Siberia.

Wed 16th September 2020

Hundreds seek damages as Victoria faces multiple class-action lawsuits over Melbourne's Covid lockdown - The Guardian

Daniel Andrews government faces legal fight as regional Victoria prepares to ease restrictions and state reports 42 new coronavirus cases and eight deaths

Matilda Boseley Wed 16th September 2020

Could this be the large cap v
(ASX:BRN) share price? - Mot

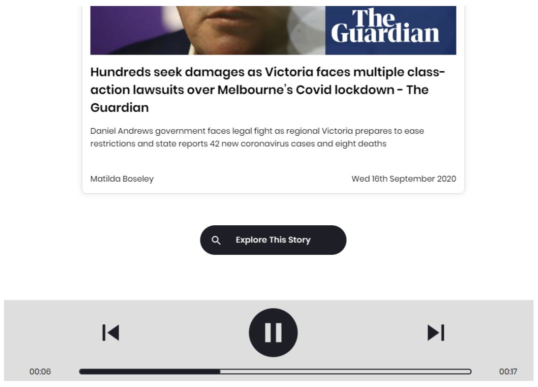
Could Pro Medicus Ltd (ASX: PME) be a large
price? We take a closer look at both compa

Explore This Story

00:00 00:00

Appendix 1: Get initial articles

2 Play Audio


Hundreds seek damages as Victoria faces multiple class-action lawsuits over Melbourne's Covid lockdown - The Guardian

Daniel Andrews government faces legal fight as regional Victoria prepares to ease restrictions and state reports 42 new coronavirus cases and eight deaths

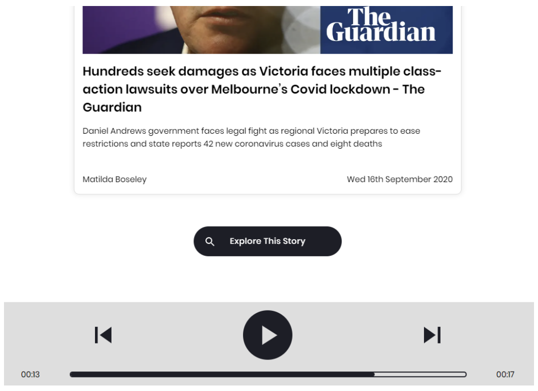
Matilda Boseley Wed 16th September 2020

Explore This Story

00:06 00:17

Appendix 2: Playing audio

3 Pause Audio


Hundreds seek damages as Victoria faces multiple class-action lawsuits over Melbourne's Covid lockdown - The Guardian

Daniel Andrews government faces legal fight as regional Victoria prepares to ease restrictions and state reports 42 new coronavirus cases and eight deaths

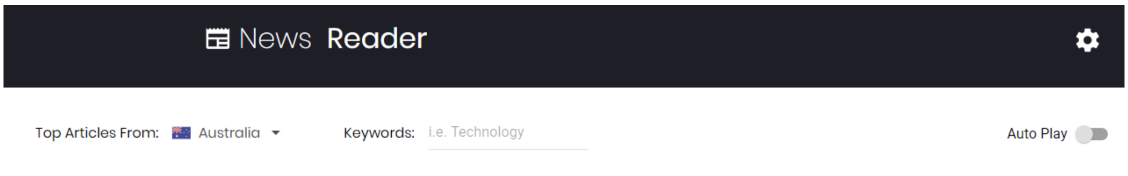
Matilda Boseley Wed 16th September 2020

Explore This Story

00:13 00:17

Appendix 3: Paused audio

4 Uncheck AutoPlay

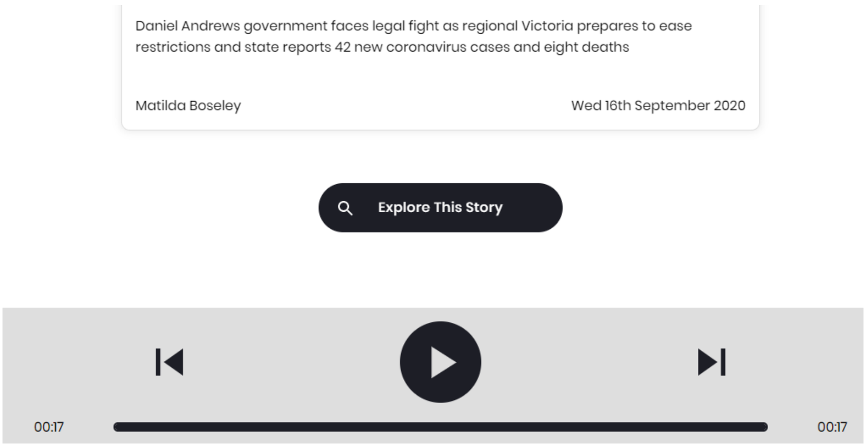

News Reader

Top Articles From: Australia

Keywords: i.e. Technology

Auto Play

Appendix 4: Auto play unchecked


Daniel Andrews government faces legal fight as regional Victoria prepares to ease restrictions and state reports 42 new coronavirus cases and eight deaths

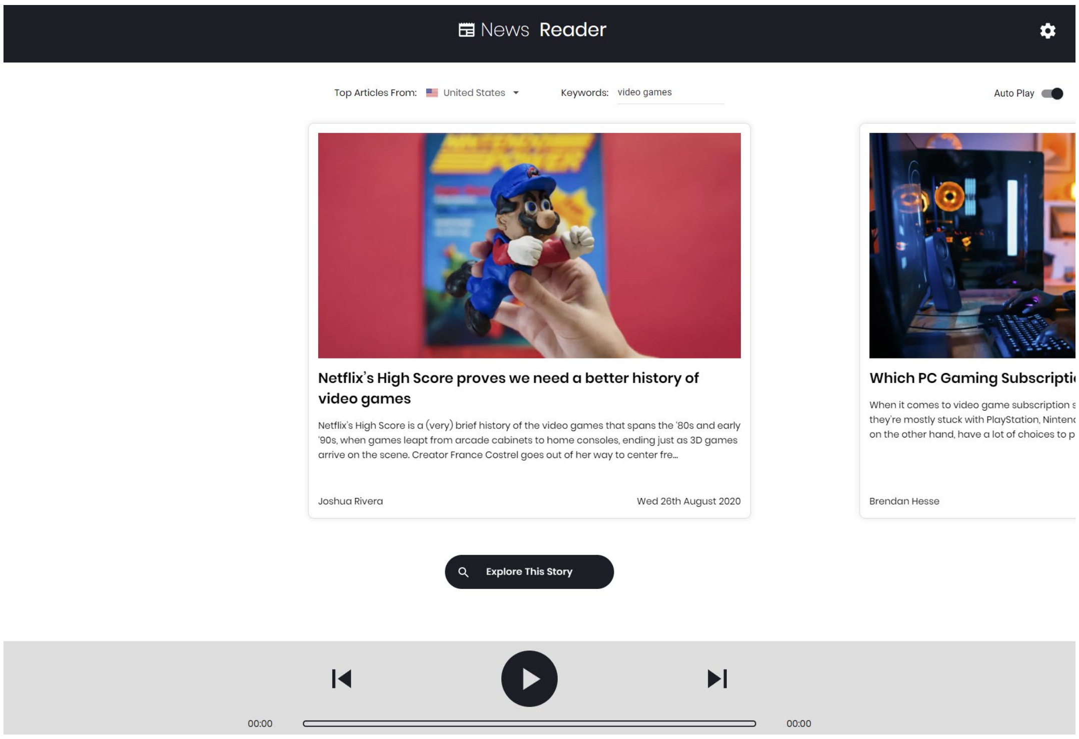
Matilda Boseley Wed 16th September 2020

Explore This Story

00:17 00:17

Appendix 4: Audio halt

5 Search Keywords


News Reader

Top Articles From: United States

Keywords: video games

Auto Play

Netflix's High Score proves we need a better history of video games

Netflix's High Score is a (very) brief history of the video games that spans the '80s and early '90s, when games leapt from arcade cabinets to home consoles, ending just as 3D games arrive on the scene. Creator France Costrel goes out of her way to center fre…

Joshua Rivera Wed 26th August 2020

Which PC Gaming Subscripti

When it comes to video game subscription s
they're mostly stuck with PlayStation, Ninten
on the other hand, have a lot of choices to p

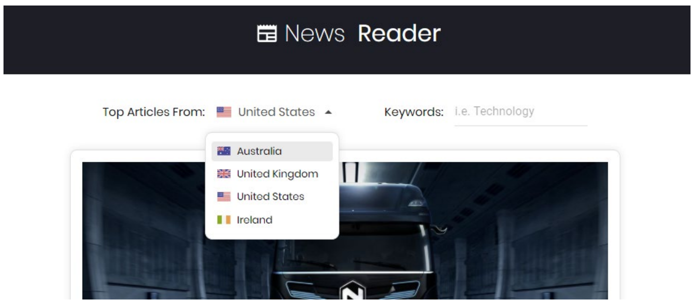
Brendan Hesse

Explore This Story

00:00 00:00

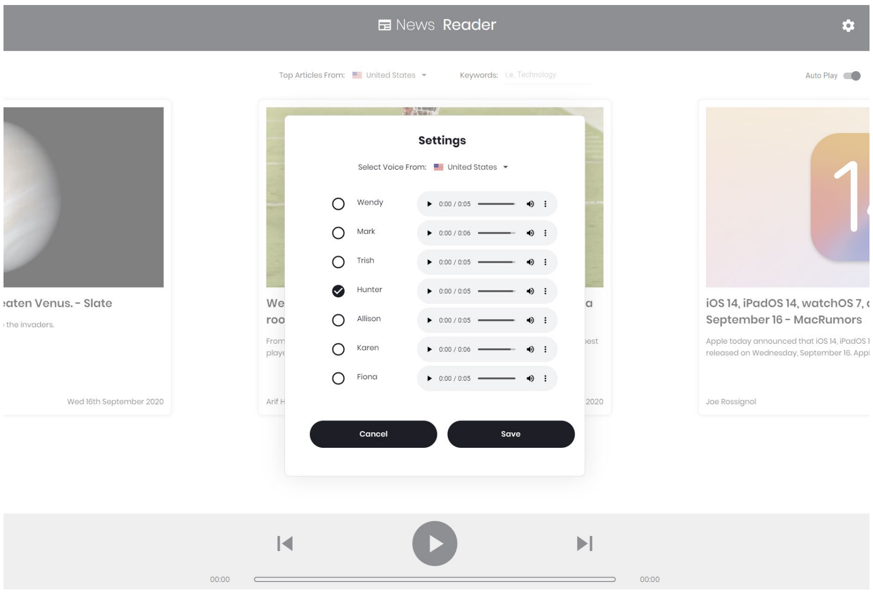
Appendix 5: Search for "video games"

6 Select Country



Appendix 6: Select Country

7 Select Speaker


News Reader
Top Articles From: United States
Keywords: i.e. Technology
Auto Play
Settings
Select Voice From: United States
Cancel
Save
00:00
00:00

Settings

Select Voice From: United States

○	Wendy	0:00 / 0:05
○	Mark	0:00 / 0:06
○	Trish	0:00 / 0:05
✓	Hunter	0:00 / 0:05
○	Allison	0:00 / 0:05
○	Karen	0:00 / 0:06
○	Fiona	0:00 / 0:05

aten Venus. - Slate

the invaders.

Wed 16th September 2020

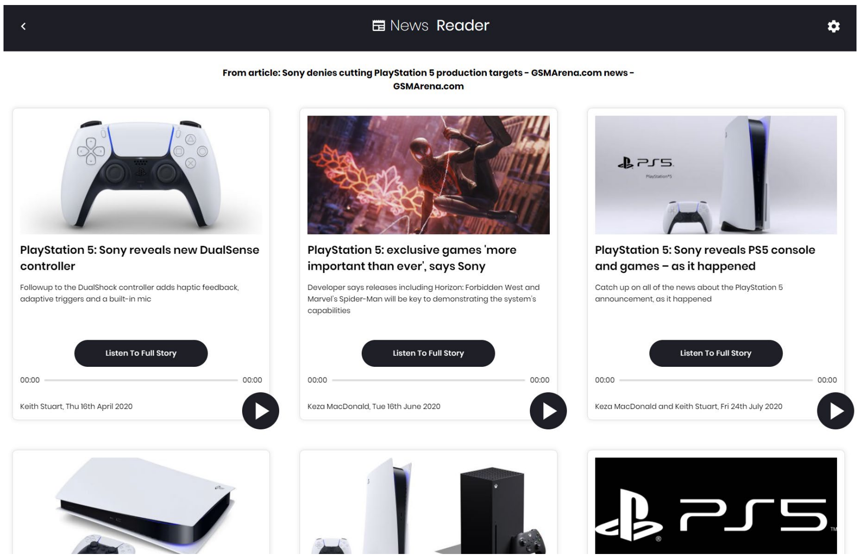
iOS 14, iPadOS 14, watchOS 7,
September 16 - MacRumors

Apple today announced that iOS 14, iPadOS 1
released on Wednesday, September 16. Appl

Joe Rossignol

Appendix 7: Select Speaker

8 Explore Article



From article: Sony denies cutting PlayStation 5 production targets - GSMArena.com news - GSMArena.com

PlayStation 5: Sony reveals new DualSense controller

Followup to the DualShock controller adds haptic feedback, adaptive triggers and a built-in mic

Keith Stuart, Thu 16th April 2020

PlayStation 5: exclusive games 'more important than ever', says Sony

Developer says releases including Horizon: Forbidden West and Marvel's Spider-Man will be key to demonstrating the system's capabilities

Keza MacDonald, Tue 16th June 2020

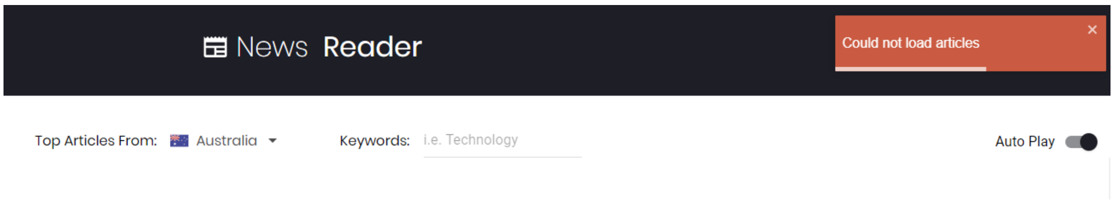
PlayStation 5: Sony reveals PS5 console and games – as it happened

Catch up on all of the news about the PlayStation 5 announcement, as it happened

Keza MacDonald and Keith Stuart, Fri 24th July 2020

Appendix 8: Explore Article

9 Handle Article Errors


News Reader

Could not load articles

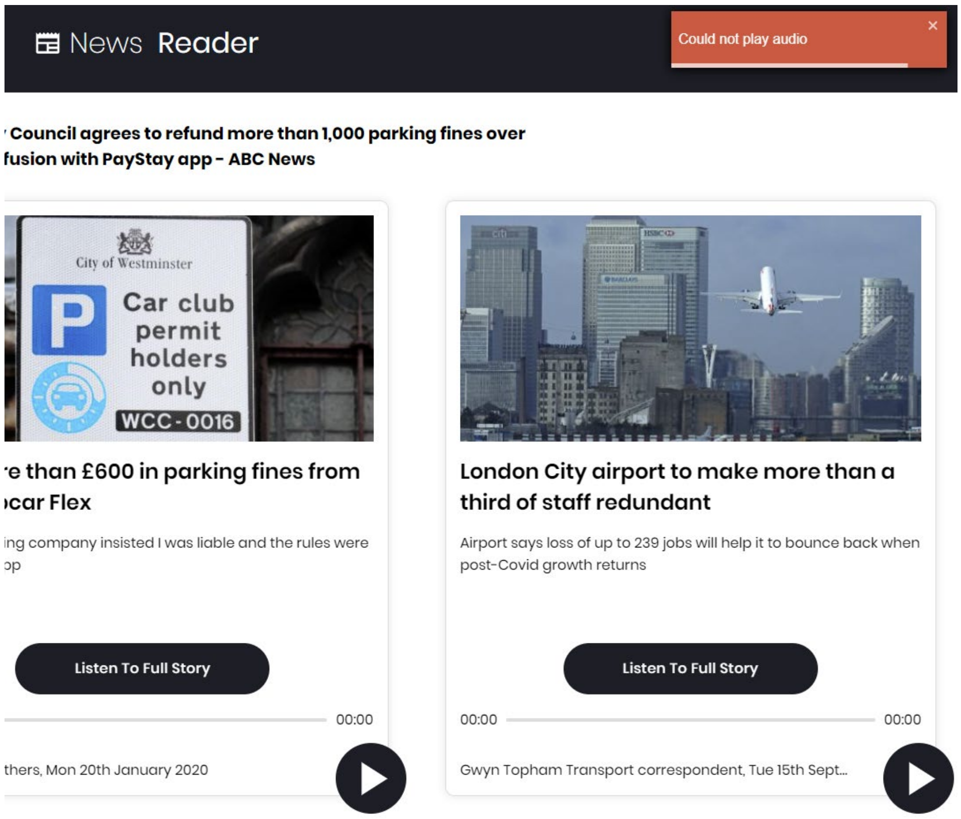
Top Articles From: Australia

Keywords: i.e. Technology

Auto Play

Appendix 9: Article popup error

10 Handle Speech Errors


News Reader

Could not play audio

Council agrees to refund more than 1,000 parking fines over
fusion with PayStay app - ABC News

e than £600 in parking fines from
car Flex

ing company insisted I was liable and the rules were
op

Listen To Full Story

00:00

thers, Mon 20th January 2020

London City airport to make more than a third of staff redundant

Airport says loss of up to 239 jobs will help it to bounce back when post-Covid growth returns

Listen To Full Story

00:00 00:00

Gwyn Topham Transport correspondent, Tue 15th Sept...

Appendix 10: Speech popup error