

FLY BULLETIN: AN INTELLIGENT NEWS APP

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Abstract— As of late, we have seen the far reaching utilization of online news. Online news stages assist us with conquering the worldly and spatial restrictions of customary print papers. Online news purchasers like to get to the news through news aggregators, for example, web crawlers and web based life stages. Our lives revolve around smartphones and mobile applications today. Whether it's about waking up in the morning, navigate through new routes or book a movie date, there's no task that we don't need mobile applications for. Mobile apps have really made everything just a click away! Mobile applications are handy and keep user notified about all breaking news happening around the globe. While making this paper we examined different models and approach that have been embraced by famous applications and dissected them. We have proposed a thought that will be executed in our application and would be a stage towards better client experience. User can get full access to the news anytime from anywhere. Our app, delivers crisp and short breaking news and trusted in-depth reporting, amazing user experience. It enables the user to check feed, read breaking news, check weather anywhere without being redirected to another website, view live news and read news. It refreshes you with warnings of breaking news, rapidly and precisely, day in and day out. The main idea is to provide one spot destination for reading or watching any kind of news and checking weather condition of anyplace from anywhere. We have followed incremental approach in building this application. Our app interacts with the user and lets them choose from a wide category of news. The application communicates with open weather and news API for feeding the news stories. Our weather fragment provides graphical comparison for a week's weather.

Index Terms— Geotagging, Clustering, Aggregators, Knowledge Graph.

I. INTRODUCTION

The distribution of information has always been through the print media and still, many of us are habitual to reading the news on a daily basis. For many of us, news reading is a part of the daily routine and the day isn't just started without going through the news articles. With time and such fast development of technology, people are changing the way they consume news and have drastically shifted from newspapers to news applications. Knowing what's happening worldwide opens up one's brains and develops a sense of responsibility in people for their society.

Apps have completely changed the way people receive news and also react to it. News apps attract readers to read news due to (i) **Accessibility**—Newspapers are to be bought in

exchange of penny coming out of your pocket but with mobile apps, there is no hassle of paying daily or monthly payment for the newspaper.(ii)**Live News**: Newspapers print the information of previous day and distribute it to readers the next day which means if something has happened yesterday somewhere then you will come to read that today if you are a newspaper reader but with apps, one gets the live news of incidents taking place around the globe. (iii)**Mass Appeal**: Accept it or not but the appeal of apps is way beyond the capability of newspapers. Apps distribute the news that is not only the 'words' but a mixture of graphics, words, pictures and videos all the appealing qualities combined at one place. iv)**Debates and Discussions**: There are tons of issues taking place around the globe every single day be it political or non-political and there are tons of experts of these fields who possess greater knowledge in such domains than an average person, they participate in debates and express broader view and vision over the discussion topic and it is simply just not possible to bring their statements down in words in newspapers thus this type of distribution of news through apps is the capability of this medium worth applauding.

Our news app helps you know what's happening in the world and keeps the user aware of breaking topics happening in the world .The app keeps readers informed, to intuitively move from story to story, and from segment to area in accordance to following genre: Entertainment, Business, Technology, Political, Sports. Our spotless structure lets you read articles without mess, with valuable highlights like a dark mode for evening time perusing. Add our gadget to your home screen for simple access to breaking news. The application is allowed to download and use without any points of confinement on what number of articles or recordings you can see. It encourages you study the narratives that issue to you. The user can watch live news, read breaking news and check weather. Our app is easy to use, fast response, excellent user experience, provides details efficiently, user friendly interface, availability of different genre of news at one place at same time.[10]

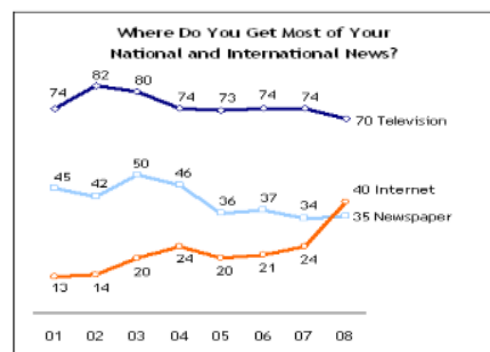


Fig.1 Distribution of news via different medium

II. SURVEY METHOD AND RESEARCH SCOPE

To build up the review some portion of the paper, we examined numerous news applications in an organized manner, up to ten applications that were made between 2002 and 2018 on google play store. We researched a lot about these big tech giants' apps as Microsoft news, Google news etc. Also, in our research we found that the trend of watching live news, reading online and breaking news is increased from the past years till the digital technology came over. By, looking at the statistics, we can say that people start liking to read news from apps, social media than the print media.[9]

This trend has lot of advantages as people will get the news early then print media which provide news after a gap of a day and others too. As to extent of our survey we center around the utility of these apps than other existing apps e.g., integrating weather forecast along with the live news in the app as google news app redirect the weather page to a different website, watching live news or breaking news in dark mode as we are focused in making an app which is more user friendly and other options too. We are using API's to show all the data in our application.[8]

The identification of certain apps for our research was done on the basis of this strategy. We downloaded certain apps along with their relevant papers (NRS) and journals (An investigation of tedious news show and news utilization in Korea etc.) for articles that are in the same context as for us. Moreover, we utilized the watchwords "news proposal" and "online news" to scan for papers in Google Researcher. Utilizing the subsequent arrangement of articles as a beginning stage, we followed the references of the recovered articles to find extra papers on the point.[7][3]

III. CHALLENGES AND APPROACH

Before we talk about the difficulties of the area in detail alongside algorithmic methodologies that were assumed in the writing, we will survey the highlights of commonly utilized news applications.[5]

A. News applications and algorithms

1) Google News

Google News is checked by a huge number of individuals regularly searching for brisk access to a scope of inclusion of a given occasion or issue. The beginning story of Google News follows back to the awful fear monger assault on the World Trade Center on September 11, 2001. After the assaults, Google Search attempted to give significant and exceptional data to the individuals.

The administration gathers and positions all articles on a specific point at that point standing out as truly newsworthy into bunches, permitting users to pick which distribution's record they read. As opposed to a physical group of news editors, Google depends on an AI calculation.

Algorithm and Methodology

The use of AI/ML to analyze the information as it arrives in real-time and connecting it to already existing information by building a graph of people, places, and things linked in the story.

Bidirectional Encoder Representations from Transformers codenamed BERT, is an AI headway made by Google

including its Artificial Intelligence development endeavors. BERT model procedures words corresponding to the various words in a sentence, instead of individually all together. This gives more impulse to the goal and setting of the inquiry question and conveys results that the client looks for.

The calculation surveys content consequently, searching for markers of value, evaluating a story's situation dependent on:

- The number of user clicks it is pulling in.
- The famous accord on the dependability of its distributor
- The importance of the story to the user's present topographical area.
- The freshness (for example distribution date and time) of the story.[12]

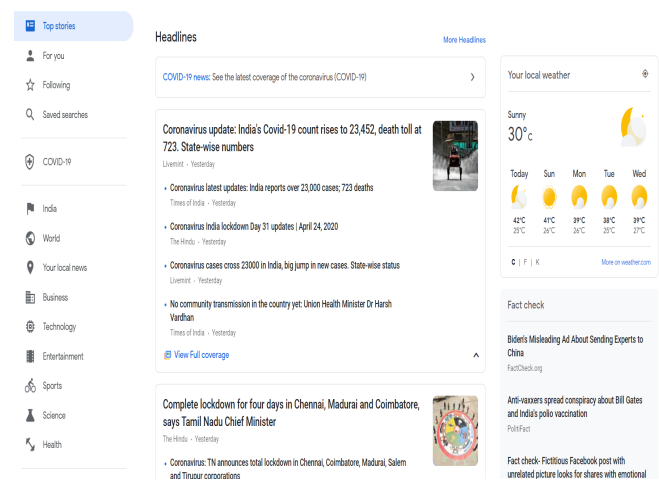


Fig.2 Google News (28 Oct ,2019)

Features

- A more personalized 'For You' tab to give information about the top stories, local stories, and stories around your interests.
- Newsstand Tab that makes it easier for you to follow the sources you trust and discover new ones.
- Full Coverage Feature provides a holistic view of a particular story from different publishers/news sources.
- Newscasts — a visual format that uses AI to give you articles, videos, and quotes on a single topic.

2) Newsstand

Google Play Newsstand is news aggregator and computerized magazine kiosk administration by Google. Propelled in November 2013 through the merger of Google Play Magazines and Google Currents. Magazine kiosk screens RSS channels from a large number of online news sources and recovers articles close to distribution. It at that point removes geographic substance from articles utilizing an exceptionally fabricated geotagger, and gatherings articles into story groups utilizing a quick web based bunching calculation. Magazine kiosk naturally relates news stories with the geographic references referenced in them (known as geographic data extraction or geotagging), and

bunches articles into story groups dependent on their literary and geographic substance. It at that point places markers speaking to story groups on an intelligent guide interface, accordingly permitting important, visual investigation of the news.

RSS

Extremely Simple Syndication (RSS) channels as its essential wellspring of information. RSS is a broadly utilized XML convention for online distribution and is perfect for NewsStand as it requires in any event a title, short portrayal, and web connect for each distributed news thing. RSS 2.0 likewise permits a discretionary production date, which decides the age or "freshness" of stories.

Geotagging

Newspaper kiosk must find and concentrate the geographic substance from the article. This procedure, depicted prior as geotagging, binds together the unequivocal printed article content with the verifiable topography, and empowers spatial investigation of the news.

- Users can likewise buy in to topical channels of enthusiasm, with the administration surfacing news sources that intrigue the client.
- Google Play Newsstand bolsters PDF and RePub record groups for magazine substance, and RSS channels for news content.[1]

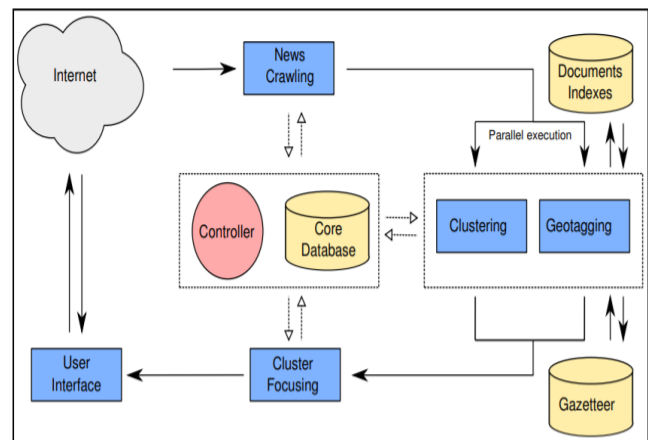


Fig.4 NewsStand Architecture



Fig. 3 NewsStand UI interface in marker mode

Online clustering

A bunching calculation for the news space should assemble all news stories that portray a similar news occasion into gatherings of articles named story groups. Extensively, a news occasion is characterized regarding both story substance and story lifetime — articles in a similar bunch should share a significant part of the equivalent significant watchwords, and ought to have transiently proximate dates of production.

Features

- For distributors, Google offers an assortment of devices for customization and enhancement of their substance, just as the choice to incorporate advertisements using DoubleClick for Publishers.
- Uses map interface which is dynamic

3) Microsoft News

Microsoft News (recently named MSN News and Bing News) is a news aggregator and administration that highlights news features and articles picked by editors. The application incorporates segments for top stories, U.S., world, legislative issues, cash, innovation, diversion, supposition, sports, and wrongdoing, alongside different random stories.

Features

It permits clients to:

- Set their own preferred subjects and sources
- Receive notices of breaking news however alert
- Filter favored news sources
- Alter text dimensions to make articles simpler to use.

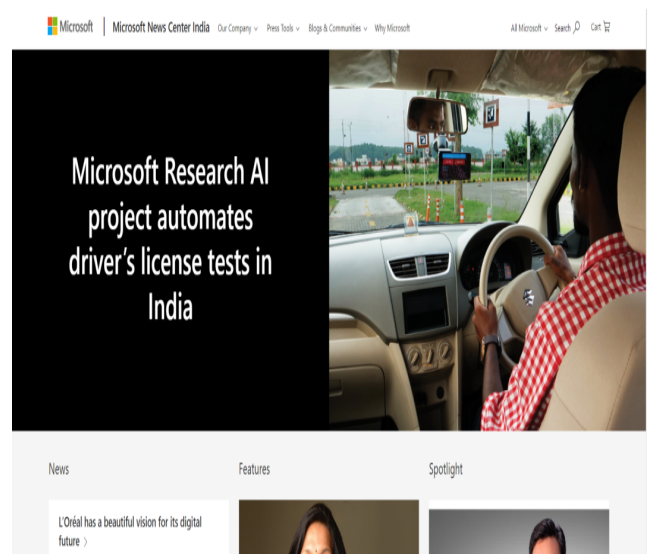


Fig.5 Microsoft News (28 Oct ,2019)

Online news platforms contain enormous amount of news which can cause information overwhelming to users due to the time sensitiveness of news articles, users' interactions with news articles are highly sparse, which results in the data sparsity problem of recommendation systems. To address this challenge, some utilize rich content features in news to model users preference.

External Knowledge Graph (KG) information

It contains rich knowledge facts and well-structured relations, is also incorporated to alleviate the data sparsity issue and improve the recommendation systems. However, some news specific information is missing in a generic KG, including the collaborative relations of entities encoded in news articles and browsing behaviors of users. Utilize the collaborative information from news content and user behaviors to construct a more powerful knowledge graph, named News Graph (NG). [13][11]

In particular, the collaborative edges are extracted in three ways:

- (1) co-occurrence in the same news;
- (2) clicked by the same user;
- (3) clicked by the same user in the same browsing session.

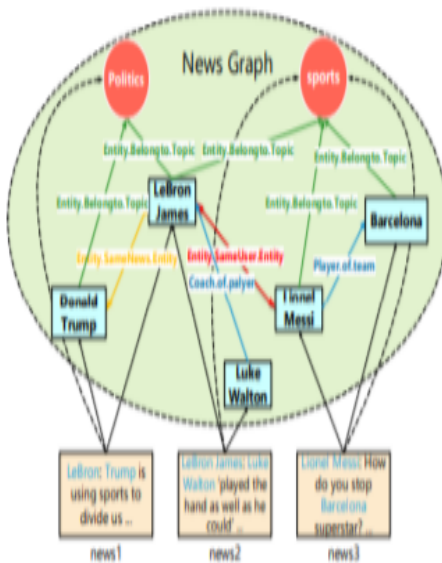


Fig.6 Overview of News graph construction

Including enormous irrelevant relations not only makes the knowledge graph less effective to provide news-related information, but also makes some explainable recommender models harder to search good knowledge paths for reasoning. A **News Relation Selecting (NRS) algorithm** to filter out the news irrelevant relations.[2]

4) Flipboard

Flipboard is a news aggregator and informal organization collection organization in New York. Its product, otherwise called Flipboard, was first discharged in July 2010. It totals content from internet based life, news channels, photograph sharing destinations and different sites, presents it in magazine position, and permits clients to

"flip" through the articles, pictures and recordings being shared. It arranges content in excellent, customized bolsters and an at no other time seen "flip" plan, bringing the appeal of magazines and print media to the tablet. Users can likewise spare stories into Flipboard magazines. It is algorithmically produced and editorially guided.

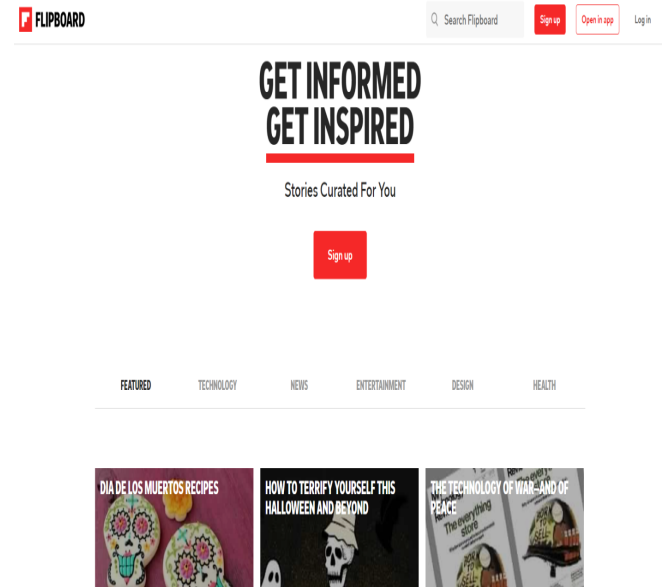


Fig.7 Flipboard (28 Oct, 2019)

B. Challenges to user experience

1) News category segregation with horizontal paging

Swipe sees permit you to explore between kin screens, for example, tabs, with an even finger motion, or swipe. This route design is additionally alluded to as even paging. The classifications will be isolated into business, political, sports, amusement and technical.

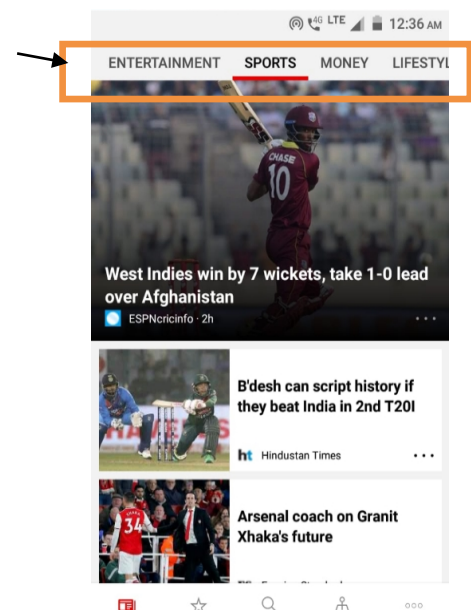


Fig.8 Reference screenshot taken from Microsoft news

2) *Detailed Coverage Feature provides a holistic view of a particular story.*

Detailed coverage section will provide a detailed article on a particular headline in a new screen.

**Fig.9** Reference screenshot taken from Microsoft news

3) *Breaking News Tab*

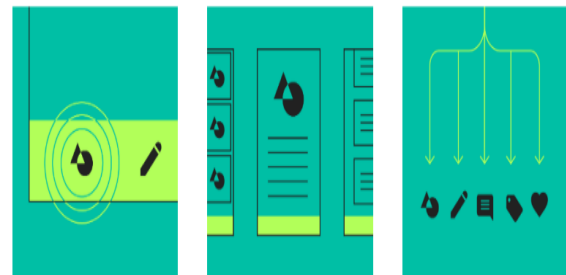
Breaking news from publications on your new tab page. Get the top stories of the day or select your specific topics of interest and get follow ups of the breaking news.

4) *Bottom Navigation*

Bottom navigation bars permit development between essential goals in an application.[4]
Destinations in Fly Bulletin bottom navigation

- Home
- Live News
- Weather
- Notifications

Principles



Ergonomic

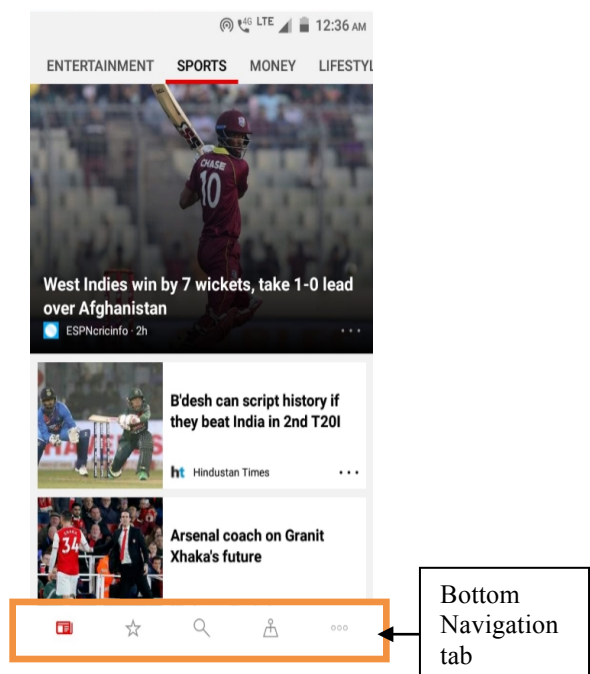
The bottom navigation bar is easy to reach on a handheld mobile device.

Consistent

When used, the bottom navigation bar appears at the bottom of every screen.

Related

Bottom navigation bar destinations should be of equal importance.

Fig.10 Reference screenshot taken from android studio**Fig.11** Reference screenshot taken from Microsoft news

5) *Personalized feed*

User will be given a choice to choose from a variety of categories to follow after they create their account. Post that their feed would be based on the topics they follow.

6) *Push Notification*

Clients will be informed about the breaking news. Message pop-ups help to draw in more users consideration at certain touch points. They help to send continuous updates and that encourages crowd to normally participate in using the application.



Fig.12 Reference screenshot of push notification

7) *Splash screen*

Splash screen is a graphical control component comprising of a window containing a picture, a logo, and the present variant of the product splash screens are ordinarily utilized by especially huge applications to tell the client that the program is stacking or for the background processes. They give criticism that a long procedure is in progress. Sometimes, an advancement bar inside the splash screen shows the stacking progress. Splash screens normally serve to upgrade the look and feel of an application or site, subsequently they are frequently outwardly engaging.



Fig.13 Reference screenshot taken from Microsoft news

8) *Live News*

The users could stream live news without leaving their current screen or being redirected to other application. Following are the gaps in other apps that are essential and need to implemented to provide better user experience. Hence, we are going to implement following features in our app.

9) *Integration of weather forecast*

Though there are many news apps available but none of them has an integrated weather app. Even google news redirects the user to weather.com for viewing detailed weather forecasts.

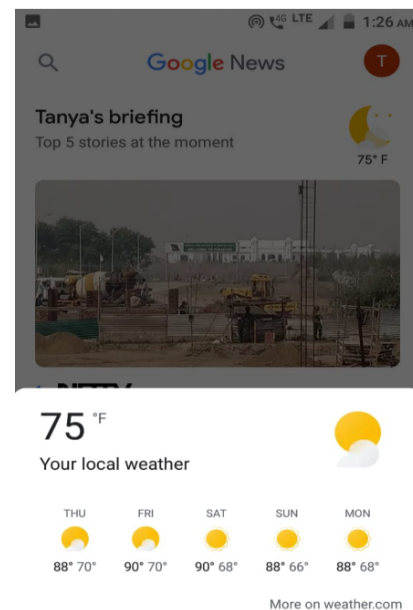


Fig.14 Google redirecting to weather.com

Limitation

- Fails to provide a good user experience.
- Wastage of time
- Unnecessary redirection to a site

10) *Dark mode*

- It spares vitality, for the most part if the gadget utilizes an OLED or AMOLED screen.
- While the dim content on a white foundation is the best as far as lucidness, Dark Mode (which has light content on a dull foundation) is better for diminishing eye strain in low light conditions.
- With most of the screen dull, the screen glare is decreased, along these lines limiting flashing and blue light.

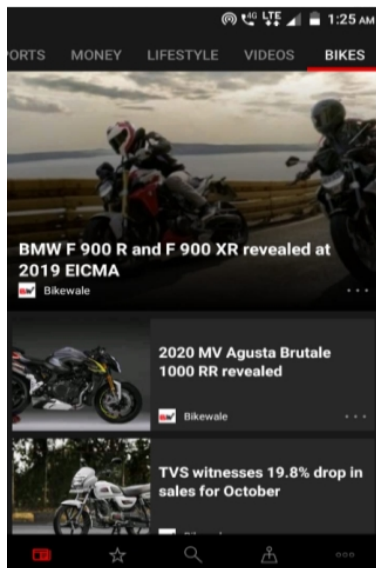


Fig.15 Reference screenshot taken from Microsoft news

C. PROPOSED MODEL

The incremental build model is a technique for programming improvement where the model is planned, actualized and tried gradually (somewhat more is included each time) until the item is done. It includes both advancement and support. This model consolidates the components of the waterfall model with the iterative way of thinking of prototyping.

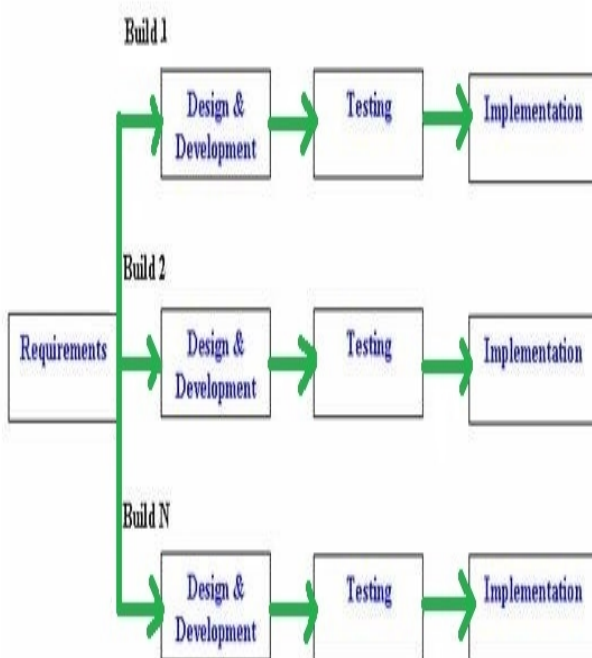


Fig.16 Incremental Life cycle Model

1) Advantages of Incremental Model

Creates working programming rapidly and ahead of schedule during the product life cycle.
Progressively adaptable – less exorbitant to change extension and prerequisites.
Simpler to test and troubleshoot during a littler cycle.
Simpler to oversee chance on the grounds that dangerous pieces are distinguished and dealt with during its cycle.
Every emphasis is an effectively overseen achievement.
Core product is developed first i.e. main functionality is added in the first increment. After every cycle, relapse testing ought to be directed. During this testing, broken components of the product can be immediately distinguished on the grounds that couple of changes are made inside any single cycle. It is commonly simpler to test and troubleshoot than different strategies for programming advancement on the grounds that moderately littler changes are made during every cycle. This takes into account more focused on and thorough testing of every component inside the general item. With each discharge, another element is added to the item. Client can react to highlight and audit the item. Danger of changing prerequisite is decreased. Workload is less too.

2) Disadvantages of Incremental Model

Each period of an emphasis is inflexible and don't cover one another. Issues may emerge relating to framework engineering on the grounds that not all prerequisites are gotten together front for the whole programming life cycle.

It requires great analysis. The resulting cost may surpass the expense of the association. As extra usefulness is added to the item, issues may emerge identified with framework design which was not apparent in before models.[6]

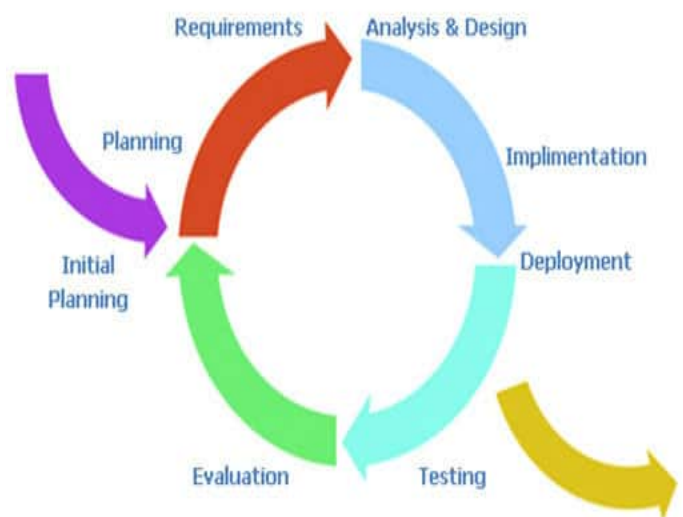


Fig.17 Software life Cycle

3) Objective

- Making news reading hassle free-News is just a tap away. Crisp news is categorized into

- Political, entertainment, technical, sports and business. User can access news anywhere and at anytime.
- Making news reading instant-Crisp and short news is available within the app itself without being redirected to any link which enables users to consume content efficiently.
- Providing news categorized into different genre -News is already categorized into genre like Political, entertainment, technical, sports and business.



Fig.18 Categories in news app

Integrating weather forecasting-Integrated weather within app enables users to check weather forecasts like minimum, maximum temperature, pressure, humidity, wind, speed and precipitation of any place.



Fig.19 Attributes in weather section

The Software Prototyping alludes to building programming application models which shows the usefulness of the item a work in progress, yet may not really hold the specific rationale of the first programming. Programming prototyping is getting exceptionally well known as a product advancement model, as it empowers to comprehend client necessities at a beginning period of improvement. It gets significant input from the client and helps programming originators and engineers comprehend about what precisely is normal from the item being worked on.

Programming prototyping is utilized in common cases and the choice ought to be taken cautiously with the goal that the endeavors spent in building the model increase the value of the last programming created. The model has its own advantages and disadvantages talked about as expanded client inclusion in the item even before its usage. Since a working model of the framework is shown, the clients improve comprehension of the framework being created. Diminishes time and cost as the deformities can be identified a lot before. Snappier client input is accessible prompting better arrangements. Befuddling or troublesome capacities can be recognized.

The Disadvantages of the Prototyping Model are as danger of deficient necessity examination attributable to an excessive amount of reliance on the model.

Clients may get befuddled in the models and real frameworks. For all intents and purposes, this technique may build the multifaceted nature of the framework as extent of the framework may grow past unique plans.

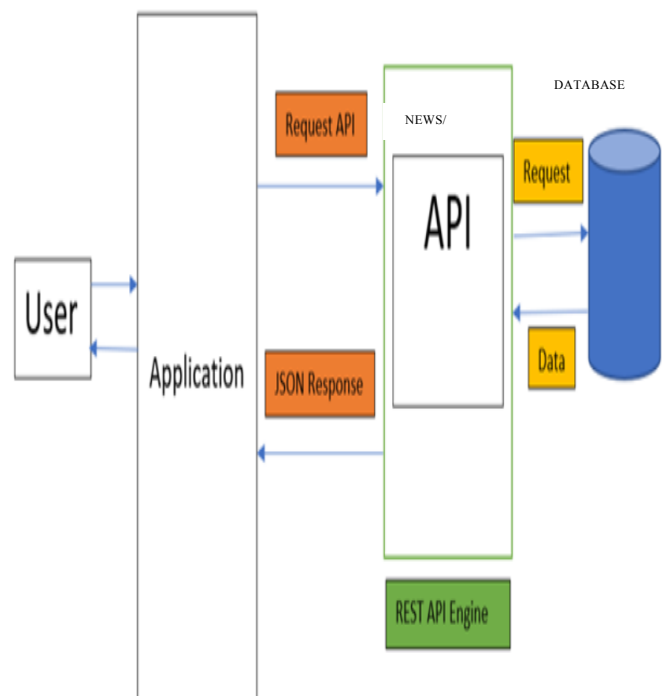


Fig.20 Prototype for news application

D. System Prototype

IV. CONCLUSION

These days newspaper subscriptions are losing their popularity. With the advent of online streaming platforms, even TV news channels are losing viewers day by day. The blast of portable news applications has obscured the customary job of papers, yet can't investigate inside and out subjects of open premium.

Right now, exhibited the thought behind structure a news application. We at that point displayed the model and approach behind building up the application, after which we exhibited four diverse news application and concentrated their features. to the best of our insight we are the first to coordinate live climate check with a news application.

The point our paper was to feature the way that in the event that there are two assignments that are connected, at that point as opposed to utilizing various applications developers could give the same usefulness in a solitary application. This would have different points of interest like maintaining a strategic distance from wastage of memory space, furnishing clients with each usefulness they need on a solitary stage. This would prompt better client experience and maintain a strategic distance from superfluous wastage of time.

Our application intends to overcome all the limitations and drawbacks that have been already stated above and raise the bar higher. It offers convenient news viewing, breaking news, smart view, categories, live streaming, share, weather check and real time notifications. It will offer seamless user experience, crisp and legitimate news. Hence, incorporates a hitch free smooth & enthralling reading experience to its readers.

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