

Analyzing User Satisfaction of BRTS through IST and Sentiment Analysis: A Case Study of Hubballi-Dharwad BRTS

Apoorva Rao and Dr. Yogeshwar V. Navandar

Presented by

Apoorva Rao

Graduate Engineer(Pway) at AtkinsRéalis

Education: MTech. National Institute of
Technology Calicut

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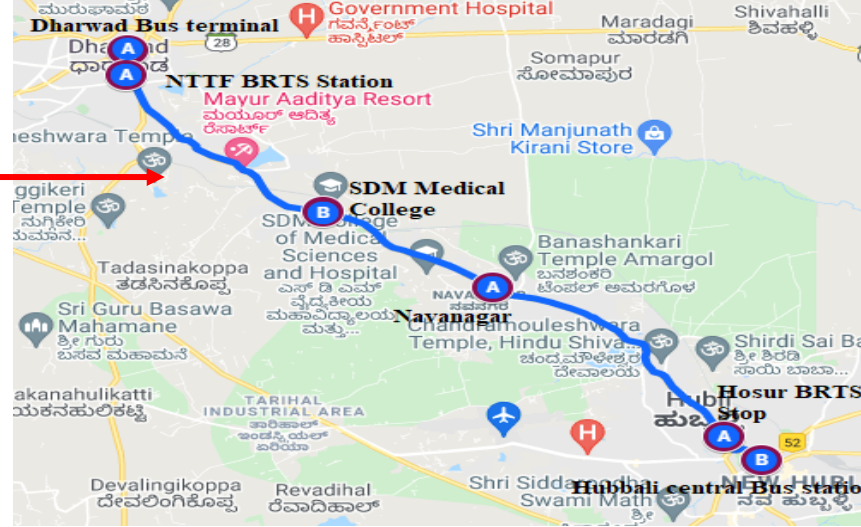
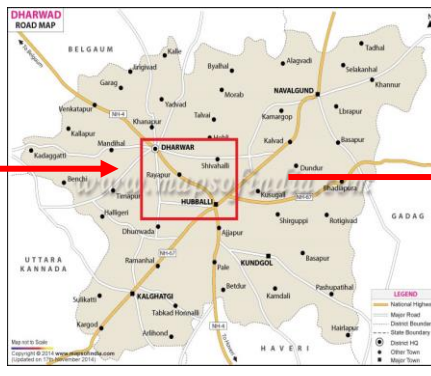
- Transportation is important in development of any country
- Health issues, environmental degradation and Traffic congestion – **Urbanization**, industrialization, increasing population density



Definition by ITDP

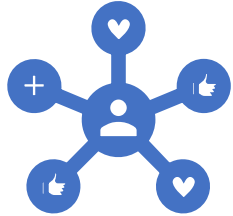
“Bus Rapid Transit (BRT) is a high-quality bus-based transit system that delivers fast, comfortable and cost-effective services at metro-level capacities”

Study Area



- **Excellence in Urban Mass Transit Project** at National Level from the Ministry of Housing and Urban Affairs
- **Most Preferred BRTS in India Award** in 'Transit & Mobility' category at the 2nd Urban Infra Business Summit & Awards





To determine the factors
influencing users' satisfaction
level



To perform sentiment analysis
on HDBRTS using social media
comments

Objectives

Passenger
Perception



Questionnaire
Survey



Sentiment
Analysis

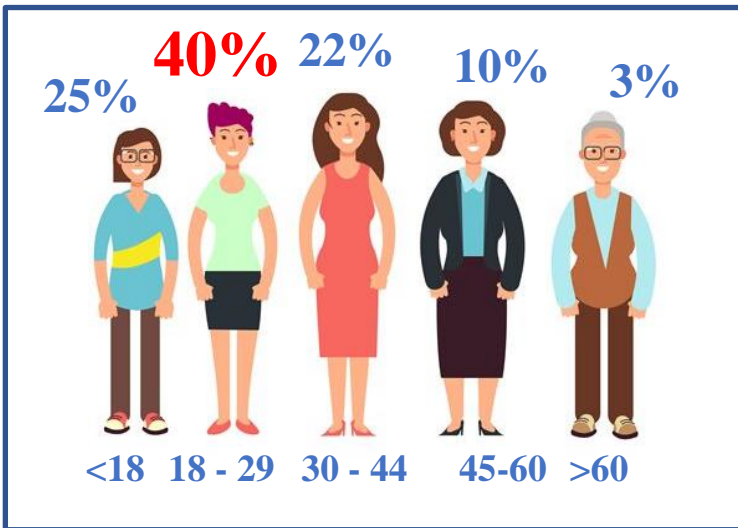
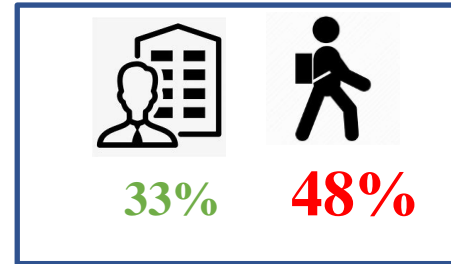
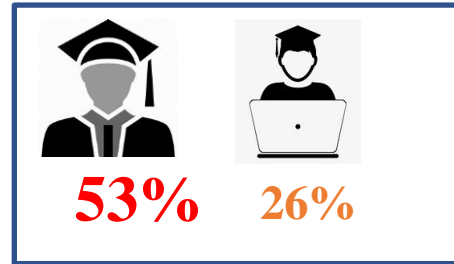
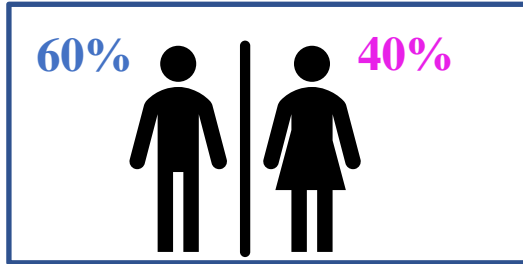


Social Media
Comments



Passenger Perception

Survey Results



Education and Work is main purpose of travel



32 % Daily and 44 % Occasional travelers




Walking is mostly used mode to reach station



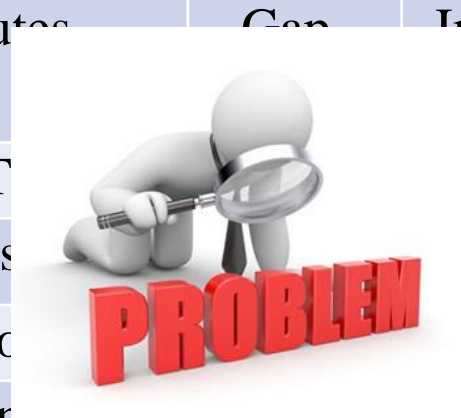
55% Cash and 45% Smart Card


Impact Score Technique

- The Impact Score technique, developed by MORPACE International Inc., is a tool for measuring customer satisfaction



<div> <p><i>Gap Score</i> = Rating for attribute by people who didn't face any problem – Rating of attribute by people who faced some problem</p> <p><i>Impact Score = Gap Score * Incidence Rate</i></p> </div>					Attributes	Gap	Impact score
1	Behavior of Staff	0.27	0.005	7	Cost of Travel	0.08	0.053
2	Frequency of Buses	0.24	0.082	8	Time taken to reach destination	0.05	0.039
3	Information Availability	0.23	0.078	9	Comfort	0.04	0.036
4	Overall Safety	0.26	0.072	10	Cleanliness	0.04	0.036
5	Pedestrian Crossing	0.21	0.062	11	Travel Time	0.08	0.023
6	Boarding Facility	0.19	0.058	12	Accessibility	0.06	0.017





Sentiment analysis is the also called as opinion mining

Unsupervised

Supervised

In-built lexicons

Text

Tools used

TextBlob

No processing

Labelled Statements

Different Models

Training

Sentiment Analysis

Unsupervised Analysis

Textblob

Vader

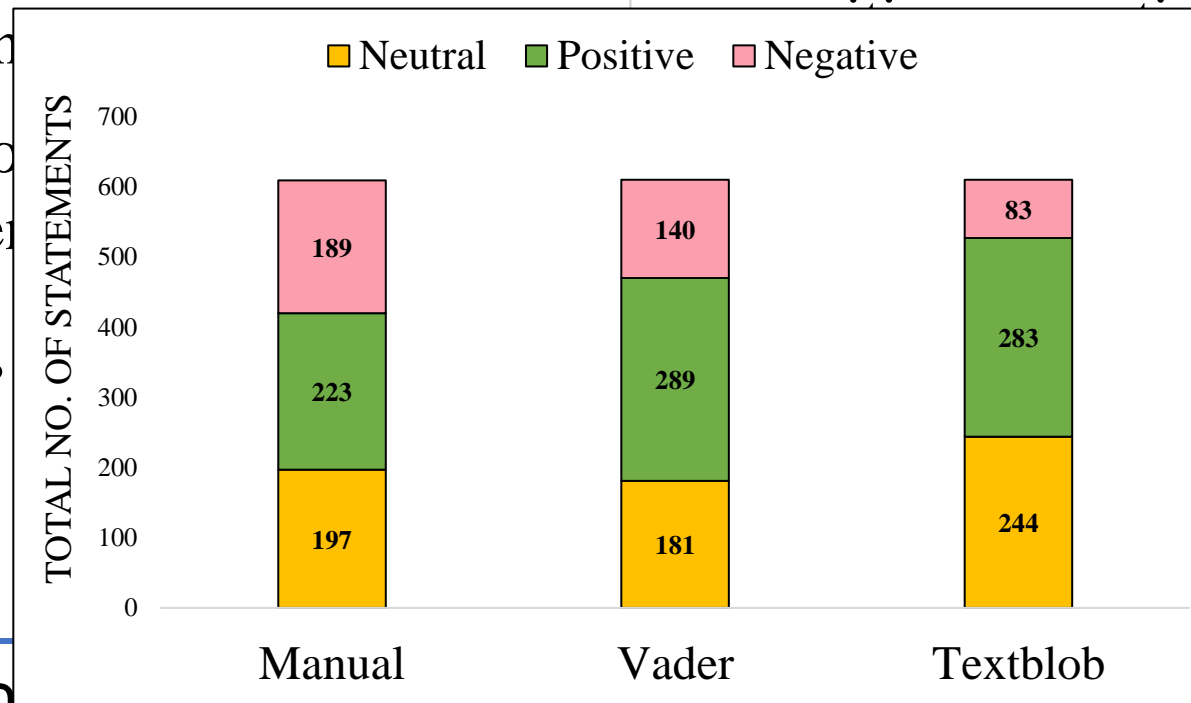
“Part-2 is here Don't just be happy for professional photos of BRTS on internet



Read the ground report by @Vijaykarnataka#Hubs#Berts”

- Textblob gives score in terms of Polarity [-1, 1] and Subjectivity [0, 1]
- Polarity tells how positive or negative is the sentence
- Subjectivity tells how much opinion or a fact is present in a sentence

- Vader gives three separate score for positive, negative and neutral for a sentence
- Vader gives overall sentiment score for a sentence
- Vader gives negation score for a sentence



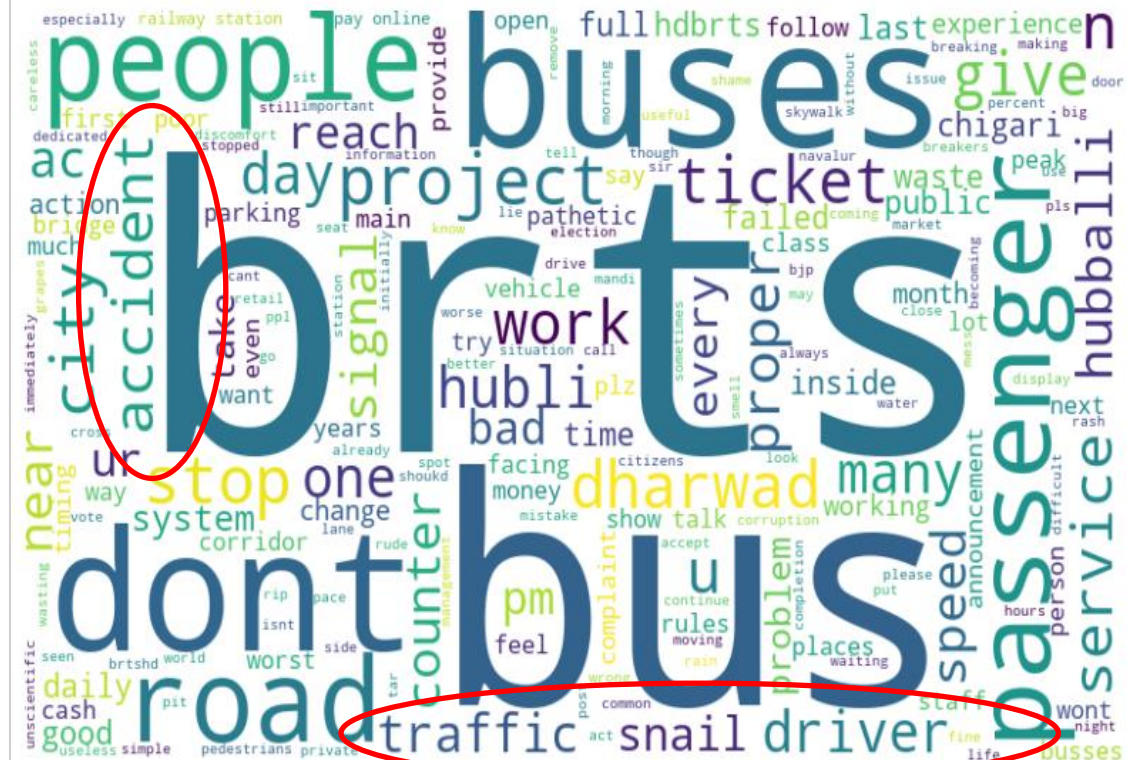
statement.sentiment.polarity

statement.sentimentanalyzer

Word Cloud



Positive Sentiments



Negative Sentiments

Policy Recommendations

- Based on Impact Score Technique, **Behaviour of Staff**, Frequency of buses, **Information Availability & Safety** inspections of appropriate information systems.
- Based on Sentiment Analysis, overall positive impact on the service
- Implementing stringent measures to prevent unauthorized private vehicles from entering the BRTS corridor, thereby reducing accidents within the corridor.
- Factors like **Behaviour of Staff**, **Safety** and Travel Time has an impact
- Enhancing pedestrian facilities by refreshing pedestrian crossings through repainting and providing well-maintained, secure overpasses and underpasses.
- Expanding the existing BRTS corridor route to encompass additional areas such as Dharwad Railway Station, Kelgiri, Goppankoppa, and others.

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Thank You

