
AI IN URBAN SPACES: A GATEWAY TO STRENGTHENING WOMEN'S RIGHTS

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ABSTRACT

The Convention on The Elimination of All Forms of Discrimination Against Women (CEDAW) was introduced in the United Nations General Assembly on 18th December 1979 and became an international treaty on 3rd September, 1981. India is also a signatory to the treaty which seeks to provide fundamental human rights and dignity to all women and expects all signatories to frame laws which ensure development and advancement of women so as to enable them to enjoy all human rights and fundamental freedoms like men.

Unfortunately, even after a lapse of several years this goal is yet to be achieved in India. It is a sad situation that women are not safe in public spaces making it extremely difficult for them to go about their daily life or access education or a career, unlike men who have the option to study and work even at distant places since they do not face harassment in public spaces and can thus avail the best facilities for career, health and wellbeing. This dichotomy is a violation of the basic human rights of women.

In my paper I would begin by defining human rights and proceed to providing a gendered perspective of it and how law makers, who are predominantly men, overlook the specific needs of women while framing laws and policies. I would be dwelling on the need for urban safety for women, with focus on public transport and elaborate on the harassments faced by women. As per a survey of International Labor Organization, 56% of women have been harassed while using a public transport. A safe public space is not a favor but a necessity to empower women with education and skill to ensure their participation in the work place. I would outline how this violence convolutes the daily life of women hindering their access to basic needs which not only impacts their skill development and employment but also their access to health which restricts their overall quality of life and also throws a spanner in the economic development of the nation.

Even though the government has introduced several initiatives - from laws to helplines and apps to improve the situation but the success rate of most of the programs leave a lot to be desired, which I would highlight. I would discuss how Artificial Intelligence (AI) is being utilized presently to

strengthen women's safety and also dwell on its probable misuse too.

Finally, I would discuss suggestive ways to strengthen urban safety by harnessing the power of AI. I would attempt a comparative analysis of how AI is being used to make public spaces safe in other countries and what features of their technology can be adopted in India given our unique geographic, social and economic characteristics.

CHAPTER 1:

HARASSMENT OF WOMEN: VIOLATION OF FUNDAMENTAL HUMAN RIGHTS

Introduction

In this chapter I would begin by defining human rights through a gendered perspective highlighting the failure of society in providing women the basic human right of security in public spaces guaranteed under Article 12 of United Nations' Universal Declaration of Human Rights (UDHR). Security empowers a woman to pursue education, employment and access health and wellbeing and thus determines the life trajectory of women, society and consequentially the nation. It has to be understood, specially by policy makers, that security is essential not only for the women but for the nation, especially when it is aspiring to be a *vishwaguru* (world leader) as it cannot do so by excluding its women, who comprise 48.41% of the population, from the job market. However, for women to join the work force, they have to be provided safe passage to place of education and work, hence the need for safety in public spaces cannot be over emphasized.

I. Human Rights

United Nations has defined human rights as rights which all human beings have access to regardless of sex and race like the right to life, liberty and security¹. The right to freedom of movement is available vide Article 13 of the Universal Declaration of Human Rights², right to life, liberty and personal security under Article 3 and prohibition of cruel or degrading treatment under Article 5³. Article 12 of the International Covenant on Civil and Political

¹ United Nations Population Funds, <https://www.unfpa.org/resources/human-rights-principles#:~:text=Human%20rights%20are%20universal%20and,religious%2C%20cultural%20or%20ethnic%20background> (last visited December 24th 2024)

² United Nations, <https://www.un.org/en> (last visited December 24th 2024)

³ United Nations, <https://www.un.org/en> (last visited December 24th 2024)

Rights (ICCPR) affirms the liberty of movement⁴ and Article 2 mandates non-discrimination in the enforcement of these rights. CEDAW's General Recommendation No. 19 acknowledges that violence against women constitutes a violation of their right to movement, and Article 15 mandates that women are treated equally including the right to navigate public spaces securely⁵. These provisions collectively emphasize the necessity for safe public environments to protect women's fundamental rights but the reality is jarringly different. There is a wide chasm when it comes to providing human rights to women and to bridge that gap it is essential to address the underlying causes of gender inequality and the specific barriers that women face in accessing safe public spaces. The process of gender mainstreaming, integrating a gender perspective into policy, law and practice is critical for prioritizing women's safety in urban planning and transportation systems.

Human rights law has been subject to significant critique for its perceived gender neutrality, a critique rooted in its historical formation by male-dominated institutions. According to Hilary Charlesworth, the male-centric development of international human rights law often results in a reflection of male experiences and viewpoints, which in turn neglects the specific realities encountered by women, especially regarding violence and harassment⁶. This has led to legal structures that inadequately address the distinct ways in which women are marginalized and leaves their safety jeopardized.

Even though the CEDAW aims to eliminate discrimination against women in every aspect of life and guarantee ability to navigate public spaces without fear⁷, ICCPR guarantees freedom of movement⁸, Convention Against Torture (CAT) prohibits acts of violence, Sustainable Development Goals (SDGs) and the Beijing Declaration advocate for the safety and empowerment of women, still harassment and violence against women persist in India with increasing cases being reported and remaining unresolved due to inadequate legal and social protections for women.

⁴ International Covenant on Civil and Political Rights, <https://nhrc.nic.in/sites/default/files/International%20Covenant%20on%20Civil%20and%20Political%20Rights.pdf> (last visited December 24th 2024)

⁵ U.N Women, <https://www.un.org/womenwatch/daw/cedaw/recommendations/recomm.htm> (last visited December 24th 2024)

⁶ Hilary Charlesworth, *Feminist Approaches to International Law*, 85, JSTOR, 613-645 (1991)

⁷ U.N Women, <https://www.un.org/womenwatch/daw/cedaw/recommendations/recomm.htm> (last visited December 24th 2024)

⁸ United Nations, <https://www.ohchr.org/en> (last visited December 24th 2024)

II. Why Are Women Still Unsafe in Cities?

A nation cannot progress without welcoming women into the work force however women face myriad issues- security being primary among them, lack of which prevents talented women from contributing productively to the nation's growth. It is often heard that cities in India are not safe hence it is necessary to understand the definition of a safe city for women. United Nations for Women defines safe city as *a city where women and girls can move around freely, without fear of violence or harassment, and enjoy the city's offerings*⁹. Unfortunately, the current situation is a far cry in India. A woman needs to think through a multitude of intertwined factors before stepping out.

84% of women in India use public transport ¹⁰ which are usually overcrowded and men use that as a shield- standing too close on the ground that there is no space. Harassment has become so routine that most women do not even complain about it resigned to the fact that there is no likelihood of relief as the behemoth police and judicial system would respond at snail's pace, may victim shame her and overall the entire rigmarole would be too much of a hassle to take out time and energy for. Opting out of public transport to the more expensive cabs is no guarantee for safety as women face harassment even there also. Most women in India do not have the economic prowess to travel in private vehicle and even those who do, are not immune to harassment as the patriarchal society doesn't like a woman driving and harassment in personal vehicle is also rampant.

III. Case Studies

In this section I would deal with some case studies of women being harassed.

A. Harassment in buses

In 2023 a woman in Kerala was sexually harassed by a 46-year-old man in a bus. *A week before this incident, a 68-year-old man was arrested for misbehaving with a woman who was in the seat in front of him.* The victim on her Instagram post said "*The accused in the case that I filed*

⁹ U.N Women

<https://www.unwomen.org/sites/default/files/Headquarters/Attachments/Sections/How%20We%20Work/flagship%20programmes/UN-Women-Flagship-programme-Safe-cities-public-spaces-en.pdf> (last visited December 24th 2024)

¹⁰ Her Circle, <https://www.hercircle.in/engage/get-inspired/trending/84-women-use-public-transport-in-india-world-bank-report-3976.html> (last visited December 24th 2024)

got bail in over two weeks. Another woman from Malabar told me that the accused got bail the same day while in another case in Kottayam the person got bail the next day". The victim also shared the trolling she faced on Instagram with people saying it was her fault *"I still can't open my Instagram account without filtering out disgusting comments on my posts from fake accounts who support this person"*. The above case is a classic representation of the slow judicial system and victim blaming¹¹.

B. Harassment in Cabs

In Bangalore while a women was travelling in a cab, the driver called his friend and started describing the woman's revealing clothes. When the woman objected, the driver retorted saying that had this been his village, people would have groped her. Though the women lodged a police complaint but there was no action.

IV. A Few Statistics

In Delhi in the year 2010, 90% women have faced sexual harassment out of which 51% faced harassment in public transport and 42 % while waiting for it. A study by Saki organization found that in Kozhikode, 71% of women have suffered harassment while waiting for public transport. In Mumbai a survey by Akshara organization found that 46% women faced harassment in buses and 17 % in trains¹².

Conclusion

The alarming increase in cases of harassment of women is an urgent cry for action and needs immediate and firm remedial steps. In the next chapter I would be discussing what steps the government has taken to improve the situation and how effective they have been and also discuss how AI is being deployed for ensuring a safe public space for women.

¹¹ Times of India, <https://timesofindia.indiatimes.com/city/kochi/more-women-report-sexual-harassment-cases-in-buses/articleshow/103265701.cms> (last visited December 24th 2024)

¹² SPRF, <https://sprf.in/womens-mobility-and-public-transportation/#:~:text=In%20Delhi%2C%20more%20than%2090%%20of%20women,experienced%20it%20while%20waiting%20for%20public%20transport.> (last visited December 24th 2024)

CHAPTER-2:

WOMEN'S SAFETY IN PUBLIC SPACES: PRESENT MECHANISMS, ITS SHORTFALLS AND AI'S ROLE THEREIN

Introduction

In this chapter I would examine the existing measures available for ensuring safety of women and dwell on their shortfalls. Next, I would deal with how AI is being utilized in this task analyzing its contributions as well as its present and potential misuse.

I. Analyzing Present Systems, Safety measures and Complaint Resolution Mechanisms

Security of women in public spaces are the outcome of various factors like designing of public spaces- dark stretches become the breeding ground for crimes, coverage of public spaces by CCTV, safety apps, helpline numbers, police patrolling. Another very important determinant of security are laws with wide coverage and teeth which deter potential offenders, coupled with swift police action for implementing them and quick and firm dealing by the judiciary. A multitude of initiatives have been undertaken for improving the situation like framing policies which ensure special provisions to women like reserved ladies compartments in buses and metros, bus marshals, apps like *Himmat*, *R mitra* to name a few. I will briefly discuss these measures.

A. *Urban Design*

Urban designing plays a crucial role in determining the safety of women. The present urban design in India prioritizes space for vehicles over pedestrians which makes it difficult for women to travel via walk. Even though the *government emphasizes the need for gender-sensitive planning and design of urban transport infrastructure* it has still not been able to achieve it. *U.N Women has also launched the Safe and Inclusive Cities Program, in India which aims to promote gender-sensitive urban planning and enhance women's safety and mobility in Indian cities*¹³.

¹³ Asmitha Yadav, Gender safety perspective in urban planning: The case of pedestrian mobility in Kanpur city, Research Gate

B. CCTV

CCTV has been one of the most used methods to monitor security. Many Indian cities have started to use advanced versions of CCTV like video analysis and facial recognition model CCTV which are *ideal for women's safety as they not only detect and alert crime but also use AI to analyze facial expressions and distress and prevent its occurrence. CCTV surveillance is effective in deterring criminal acts and collecting evidence; however, it does not provide real-time intervention and carries the risk of misuse, including voyeurism and infringements on privacy*¹⁴.

C. Panic Buttons

Many public transport systems in India have taken the initiative of installing panic buttons. Recently Tamil Nadu launched 500 public buses, each has *4 panic buttons and AI-enabled Mobile Network Video Recorder (MNVR) and three cameras each, respectively. The MNVR will be connected to a cloud-based control center via a 4G GSM SIM card. In case of any inconvenience, discomfort or threat caused by fellow passengers while travelling, the women passengers could press the panic button to record the incident. While doing so, an alarm (bell) will be raised at the control center along with a video recording of the incident on the bus. With this alarm, the operator at the control center will monitor the situation and facilitate, in real-time, the next course of action.*

D. Mobile Safety Applications

A number of mobile applications been introduced by the government for the safety of women. The *R-Mitra* application represents an initiative by Indian Railways focused on improving the safety of women traveling by train. Introduced in 2015, this mobile application is designed to offer prompt support to women experiencing distress within the railway system. It enables women to alert authorities and share their location during emergencies however their effectiveness is limited due to the unavailability of smartphones and internet access for many women.

¹⁴ Times of India <https://toi.in/> (last visited December 24th 2024)

E. GPS Tracking

Google maps allow women to share their location while travelling. Although GPS tracking systems are advantageous, they frequently fall short in rural or remote areas because of inaccuracies and inadequate coverage, which underscores the pressing need for technological enhancements.

F. Police

The police are the primary and often the first response providers in cases of harassment at public places. Their presence itself can be a deterrent for potential criminals however their spread is limited due to severe staff shortage and in fact this is a potent area where AI can be used effectively.

G. Laws on Harassment

India lacks a specific, comprehensive law addressing the harassment of women in public spaces, especially in public transport. Existing legal provisions, such as Sections 354 (assault or criminal force to woman with intent to outrage her modesty) and 509 (word, gesture, or act intended to insult the modesty of a woman) under the Indian Penal Code, are often inadequate to cover the complex dynamics of public harassment¹⁵.

H. Judiciary

When women garner the courage to report incidents of harassment it is the judiciary which, by its effective functioning, can set the benchmark for ensuring safety for women by quick disposal of case, exemplary punishment for aggressors along with ease and convenience to the women complainant.

II. Use of AI in Existing Safety Measures and its Misuse

Though there is some harnessing of AI in safety measures like apps, CCTV however its utilization in existing systems of law, police and judiciary are minimal in India. The Indian Courts have limited itself to virtual hearings since the Corona pandemic and use of AI in translating regional language to English or Hindi while police have limited its usage up to

¹⁵ Devgan, <https://devgan.in/ipc/section/354/> (last visited December 24th 2024)

online FIR only. Failing to extract maximum benefit of technology has lead the judiciary and police being straddled with huge backlog of cases whereas this situation can be drastically improved by involving and adopting more technology.

On the other hand, one also need to remember that while AI can be used in many ways but it is also a fact that there are instances where this technology is being misused. As per a recent news, drones which were deployed to track unauthorized activities in reserve forest were misused by the forest guards for spying on women and in an unfortunate incident was even used to record women reliving themselves and those photos and videos were circulated on social media. Similar misuse can occur in public transport also- for instance CCTV footage of women breastfeeding can be misused or images of women passengers can be morphed and circulated on pornographic sites.

Conclusion

The existing measures for ensuring women's safety in public areas, particularly in the context of public transportation, demonstrate a range of effectiveness and expose critical shortcomings and there is a clear necessity for broader implementation and consistent maintenance of these systems. It is also a fact that many safety apps which are developed for women need internet connection which may not always be possible in a developing nation like India. Further, it is also evident that there is insufficient harnessing of AI by the judiciary and the police.

One also needs to be aware of the potential misuse of AI - technology has been developed for the benefit of humans and it completely depends on us how we use it. In spite of the limited usage of AI in India there have been instances of misuse and the tightrope of ensuring safety while maintaining privacy and dignity of people has to be carefully walked. These shortfalls need to be addressed and we must understand that just introducing AI is not sufficient, there is need for its safe implementation. AI if used effectively can be a game changer in the arena of safety for women. In the next chapter I would be putting forth suggestions for effective harnessing of AI comparing how AI is being used in other countries and what Indian can adapt from these countries.

CHAPTER-3

URBAN SAFETY: AI LED WAY

Introduction

AI has the potential to change the entire landscape of women's safety- it is an entire new world waiting to be explored and tapped. In this chapter I would suggest a few ways in which AI can be utilized to enhance safety in urban spaces for women. In that direction I would discuss how AI is being used for women's safety in other countries and what features can India adapt from these countries.

I. Global usage of A.I

AI is a revolutionary tool which can be utilized for ensuring safety of women. I would briefly discuss a few initiatives for women safety using AI across the world.

A. *Japan's Railways' A.I Facial Recognition*

As part of Japan's plan for *counter measuring* terrorism, the Japanese Railway introduced an AI Facial Recognition system which would detect any suspicious person at any railway station and alert the authorities if any criminal is travelling in the train. It must be noted here that this system would not detect people who have committed petty crimes like theft but only criminals convicted of serious crime¹⁶. This initiative of Japan was not specifically for safety of women but it did create a safe environment for them as any criminal travelling would be continuously monitored which is reassuring for female passengers ensconced in the belief that potential criminals are being monitored. However, the initiative faced a lot of backlash as several offenders who have already completed their punishment, have objected that this continuous monitoring violates the basic legal right granted under the Japanese law of *Protection of Personal Information*¹⁷.

¹⁶ The Ashai Shimbun, <https://www.asahi.com/ajw/> (last visited December 24th 2024)

¹⁷ Delphix, <https://www.delphix.com/glossary/japan-act-protection-of-personal-information#:~:text=The%20Japan%20Act%20on%20the%20Protection%20of%20Personal%20Information%2C%20also,Information%20or%20risk%20legal%20action> (last visited December 24th 2024)

B. *Safeherapp in Philippines*

Launched during an alpha event held at De La Salle University in the Philippines last July 2023¹⁸, the *SafeHer* is an application introduced in response to an alarming rate of women's harassment and violence in public transport. The focus of this app was on the city of Manila which has been recognized as one of the most dangerous city for women commuters. The app would have AI powered SOS alert, facility for filing a report, sharing of live location among others and is expected to be a game changer in the arena of women's safety. Being in nascent stage its efficacy report is awaited.

C. *AI Surveillance in London Underground Trains*

London has introduced AI surveillance in underground stations to detect any suspicious activities and people who carry sharp objects like knives while travelling¹⁹. The AI surveillance would monitor if people were committing any crime or were in any unsafe situation. Even though this AI based surveillance was not introduced for women specifically but the system created a safe environment for women travelers.

D. *AI for Incident Detection*

University of Wollongong, Australia has developed a technology where AI would detect any violent or unusual behavior like harassment or stalking and alert the operators to take action early in a given space²⁰.

II. Utilizing AI for Women's Safety: Some Suggestions

In this section I would suggest some ideas which can be developed to enhance the safety of women in public transport in the context of India.

A. *Heat Sensor Street Lights*

There are several areas in India which are secluded and thus are not properly lighted. An initiative can be introduced for covering such areas by thermal street lights which will switch

¹⁸ A+Alliance, <https://aplusalliance.org/safeher-using-ai-to-ensure-womens-transport-safety/> (last visited December 24th 2024)

¹⁹ Wired, <https://www.wired.com/> (last visited December 24th 2024)

²⁰ University of Wollongong, <https://www.uow.edu.au/> (last visited December 24th 2024)

on when a woman is passing by, providing a sense of security. In this manner the government need not install street lights and keep them on for the entire night which would save electricity while also simultaneously ensuring that women feel safe.

B. AI Based Drone

Usage of CCTV cameras has become common and is actually useful but a major shortfall of CCTVs is that it covers only a limited area. It would be a better idea to develop drones which can be available on call and would accompany a woman while she is traveling. The drone will record footage of a certain amount of peripheral area continuously while monitoring the woman who is moving and the data will be transmitted in real time to a centralized server and can be used in case any crime is committed. Such recording would deter potential offenders as they would not dare to commit any wrong act as their face would be recorded and real time transmission of data would ensure that even if the drone is destroyed by the offender the data would already be safe. Further an additional provision for alerting the nearest police station can be included if there is any damage to the drone by offenders.

C. AI Based Phone Helpline

AI can be utilized to develop a helpline which can be activated by pressing a key on the mobile and the alert would be transmitted to the nearest police station and the woman can be tracked via GPS till help arrives without the offender being any wiser.

D. AI Based Mini Alert Buttons and Camera

It is not always possible to keep mobile phones in hand in cities like Delhi where there is a constant fear of it getting snatched. Introduction of mini SOS buttons and cameras which can be attached to the dress would be a useful thing. The women can press the button and the nearest police station would be informed and a facility can be introduced in these buttons for a 360-degree camera so that the face of the offender is captured even if he tries to attack from back and later escape from that place.

E. Harnessing AI for Judicial System

Women face large scale harassment on the roads in India but they dither to complaint as cases in courts take a long time to conclude and they are demotivated as ‘justice delayed is justice

denied'. AI can be successfully utilized to fast track proceedings at court through virtual hearings, voice based typing of voluminous legal documents, video recording of proceedings which can be typed by AI- all these measures would reduce the backlog and dispense faster justice which would not only instill a fear of law in offenders but would also encourage women to complain preventing repeat offences.

Conclusion

If a careful analysis of the situation is made it would be safe to say that AI is still evolving and the current use of AI for safety of women is limited. Countries world over are constantly developing techniques to use AI for general safety which also strengthen women's safety. It is necessary for the concerned authorities in India too to constantly update about such technologies and try and incorporate them in Indian contexts given our unique situations like limited access to smartphones for women, incomplete reach of mobile network and hence internet. India needs to research, innovate and come up with AI based solutions which are not only economically viable but also are insulated from possible misuse.

WAY AHEAD

India has an abysmal track record of gender equity- as per the Women Peace and Security Index 2023 released by Georgetown Institute for Women Peace and Security 2023, India ranks 128 out of 177 countries²¹. As per National Crime Records Bureau crime against women in India increased by 12.9% between 2018 to 2022²². If India wishes to become a global power and a *vishwaguru* this is a situation which has to be tackled on war footing and can be done by harnessing the power of AI.

Technology has been developed for the benefit of humans and we must harness its entire potential. AI is one of the biggest gift of science and if used properly it can benefit the whole nation specially women. There are a number of ways we can tap it - whether by developing safety apps, using AI to design safe public spaces or harnessing AI to strengthen police and

²¹ India Today <https://www.indiatoday.in/diu/story/women-safety-index-diu-indian-women-financially-secure-2512452-2024-03-08#:~:text=to%20the%20report,-,India%20Today's%20Data%20Intelligence%20has%20analysed%20and%20compared%20the%20recent,India%20is%200.58%20in%202023>. (last visited December 24th 2024)

²² Frontline Magazine <https://frontline.thehindu.com/news/crime-in-india-2022-ncrb-report-over-445000-crimes-against-women-in-2022-one-every-51-minutes-murders-juvenile-crimes-uapa-offences-against-state-uttar-pradesh-delhi-kolkata-kerala/article67607146.ece> (last visited December 24th 2024)

judiciary system for efficient complaint resolution.

The government has been making efforts to use AI for the safety of women but most of the AI based apps are just for name sake and no adequate and systematic reviews of the app are being done to ensure smooth and effective functioning. Another concerning factor is that in India many women do not have access to smartphones- due to cultural and economic reasons, which means that they do not have access to these safety apps, hence it is necessary for the government to develop more AI based safety features like panic buttons, AI based drones, thermal lights which do not need smartphones. Unfortunately, this technology is and can be misused too and there is an urgent need to check this menace. To conclude there is a lot of potential to utilize AI so that each and every women enjoys the benefit of technology and safety they deserve however this road should be treaded with due caution.