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ARTIFICIAL INTELLIGENCE APPROACH FOR COMMUNITY DATA SAFETY AND VULNERABILITY IN SMART CITY

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ABSTRACT

In recent years, measuring community vulnerabilities in distributed networks has been a crucial task of a complicated system in smart cities. Several existing methods have been introduced for vulnerability to solve these problems, and most of these methods are inadequate and have their limitations. The article suggests a new artificial intelligence (CSSVSC/AI) approach to solve the problem. The further measure combines internal and external variables for a growing population to provide a comprehensive overview of the community's vulnerability. Internal factors include the nature and number of boundaries within the community, and external factors represent the degree of similarity between the selected community and other cultures and the number of boundaries beyond the community. From the point of view of AI, considering community vulnerability provides a new solution to smart cities' type of problem. More accurate vulnerability results may be achieved due to the sufficient analysis of community data. Therefore the final experimental results are achieved various services in community-based AI approaches of smart cities are energy safety services is 86.92%, Water community data safety services are 78.3%, improving public safety services using AI ratio is 85.46%, Health issue reduces for the public community is 87.02% and finally, overall performance ratio is 91.02%.

Keywords: Community data safety, Vulnerabilities, Smart city.

I. INTRODUCTION

Concept of Smart City using Artificial Intelligence:

Smart cities and communities rely on the intersection of electricity, infrastructure, and ICT, which are the regions that attract much of the EU's smart public cities linked to support. The smart urban appraisal draws on past expertise in evaluating environmentally-friendly and competitive communities, which follows the principles of efficiency and quality of life, and with a strong and significant emphasis on technology and knowledge. The literature describes six aspects of smart cities, e.g. a smart economy, smart citizens, smart mobility, smart government, smart living, and a smart climate. Vulnerability is a multi-dimensional construct related to multiple definitions. It describes the 'processes of human, social, economic and environmental influences that enhance the community's vulnerability to hazard effects'. Climate Change Vulnerability is the extent to which geophysical, biological, or socio-economic processes are expected to have an adverse consequence of climate change and unable to cope with the capacity changes in the actions and characteristics of a system improve its ability to cope with external pressures and allows a system to mitigate risk by reducing its vulnerability. Individuals and institutions' ability to use available expertise and tools to deal with and handle adverse events, crises, or disasters applies to the propensity of exposed elements, such as human beings, livelihoods, and properties, to adverse events.

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Smart cities have not ICT and use technology that influences people positively. In tandem with IoT, artificial intelligence can solve core issues resulting from an overly large population of urban societies, including traffic control, health care, energy shortages, and many other problems. It will enrich the life of the city's residents and enterprises. When applied in the right areas, the use of artificial intelligence in smart cities will alter life. In cities or economic construction, there are several zones where AI can maximize system capacity and quality. Having AI in intelligent cities supports residents and the world from several perspectives. AI in intelligent cities provides different types of benefits to everyone from eco-friendly ecosystems to sustainable development. Cities should be concerned with providing a fair atmosphere to ensure that our quality of life is strengthened and that economic sustainability is accomplished and that the city is less vulnerable to natural disasters.

The main research of the paperwork as follows:

- The paper explores and proposes strategies for smart cities, in the hope of predicting disruptions that are destabilized and costly.
- Stakeholders must address the challenges mentioned above to intelligent cities' privacy in a systemic way to ensure that the challenges do not continue to afflict the remainder of the intelligent network.
- Any global event will impact the city less harmfully than the other. Intelligent cities, intelligent government, intelligent living, and intelligent ecosystems will reduce the city's vulnerability using AI for natural disasters.

The remaining session is as follows structured: section 2 discusses the drawback of the existing algorithm. Section 3 AI approaches in Community services in Smart City, Section 4 - the Performance Evaluation and Discussion. Finally, Section 5 conclusion of the article.

II. LITERATURE SURVEY: about the AI in smart city community data safety precautions:

Hyunbum Kim and Jalel Ben-Othman (2020) [25] say that in specific, variations between implementations and systems allowed by the AI technology are still in infancy, and differential bugs or problems should be resolved. To protected Cyber-Physical Systems (CPS) with AI applications such as I-VEmoSYS introduced for enabling intelligent cities.

Zaib Ullah et al. (2020) [26] discussed the key aim of the study is to examine the role played in smart cities by artificial intelligence, machine learning, and departmental strengthening learning. The above strategies are used successfully to create optimum policies (OPs) for a variety of dynamic smart urban issues. Finally, numerous research problems and more ways in which the strategies alluded to above could play an excellent role in improving a clever city's idea are addressed.

MingJian Tang (2020) [27] mentioned that efficient and constructive risk control vulnerability is crucial due to an ever-rising trend in cybercrime attributable to software flaws and exposes in the Smart City manufacturing setting. It suggests, however, a new paradigm to model EVDs in stationary as well as non-stationary scenarios.

Muhammad Atiq Ur Rehman Tariq et al. (2020) [28] represented as the conforming of megacities to Ubiquitous Cities (UC) appears, because of the fast connectivity capacity, to be a possible way to alleviate the urbanizing issues. The study has shown that the new threats for ICTs have been recognized and become one of the most relevant. The study concluded that U-cities have significantly different vulnerabilities than typical cities, and further studies are required to better understand.

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Yalan Liu et al. (2017) [29] detailed the implementation and the four main technologies are addressed in depth: indoor and outdoor data integration, 3D reconstruction and interactive modelling emergencies, integrated indoor and outdoor positioning and integrated spatial assessment; and Smart City Public Information Portal (SIPSC) technical framework development. The four key technologies are discussed in detail.

Alexandros Nikitas et al. (2020) [30] discuss that The paper introduces a recent philosophical contribution that explores the barely discussed AI, transport, and intelligent city nexus and how The can impact urban prospects. In the final analysis, The work is a tool of reference for researchers and city designers which offers specific meanings of ambiguous intelligent mobility.

T. M. Vinod Kumar (2020) [31] says that applied to smart environmental management, and the ecosystem is made self-conscious using IoT and ICT and e-Governance tools focused on current environmental regulations and e-democratic practices. The initiative shall be complementary to an organized global partnership that recognizes the world to be joint property. The culture is guided by its faith, a lifestyle that regards a deep ecological and religious climate.

Achini Adikari, Damminda Alahakoon (2019) [32] propose an automatic IA-based surveillance system to track presence in conversations of public feelings and negativity. In 29,928 social media discussions, assessed the system's applicability for the much-discussed issue of self-driving cars that would be rapidly important in smart cities. Models NLP and Markov were used as models for the dynamics and transformations of citizen mutual emotions, while Negative (toxicity) were analyzed using a deep-level learning classification system in discussions.

Tan Yigitcanlar et al. (2020) [33] suggested that it offers an insight into how AI can allow smart cities to grow. The analytical methodology is a systematic literature analysis. Results are graded under the key dimensions of intelligent city growth: economy, culture, climate, and governance. The paper discusses AI's present and prospective contributions to intelligent towns' creation to notify researchers of prospective regions.

Golias M et al. (2019) [34] presented a multi-level multi-object if architecture is proposed for identification and risk control of connected vehicle systems in smart cities and neighbourhoods. A risk assessment mechanism is applied to intelligent port cities to coordinate diverse port and near-port subsystems. The process is focused on studying risk to help understand the essence of risk and the need for preventative strategies.

Francesco Paolo Appio et al. (2019) [35] denoted that Smart cities projects are expanding at a fantastic rate worldwide. Their audacious vision is to improve local government prosperity through creativity while enhancing its residents' quality of life by delivering improved public services and a healthier atmosphere. A new research agenda for academics, experts, and policymakers can participate in critical, positive, and propitious Smart Cities speeches.

III. Artificial intelligence techniques for smart city applications:

Smart cities are highly technologically sophisticated metropolitan areas, which have strong communication between individuals and organizations. They are smart subsystem systems. All elements serve as an interconnected device that delivers access to quality services and goods in real-time in a sustainable economic and social environment. The framework uses ICTs to encourage economic development and enhance life quality and, at the same time, to improve urban management by incorporating all of the hardware and software technology. AI may be used in numerous fields, ranging from defence, stock, rescue, and transportation management. Complex considerations such as economic restructuring, environmental security, government, and connectivity concerns emerge about smart city growth. The study focuses on the value of AI for the creation of intelligent cities in the following section.

3.1 Discuss Community Services in Smart Cities:

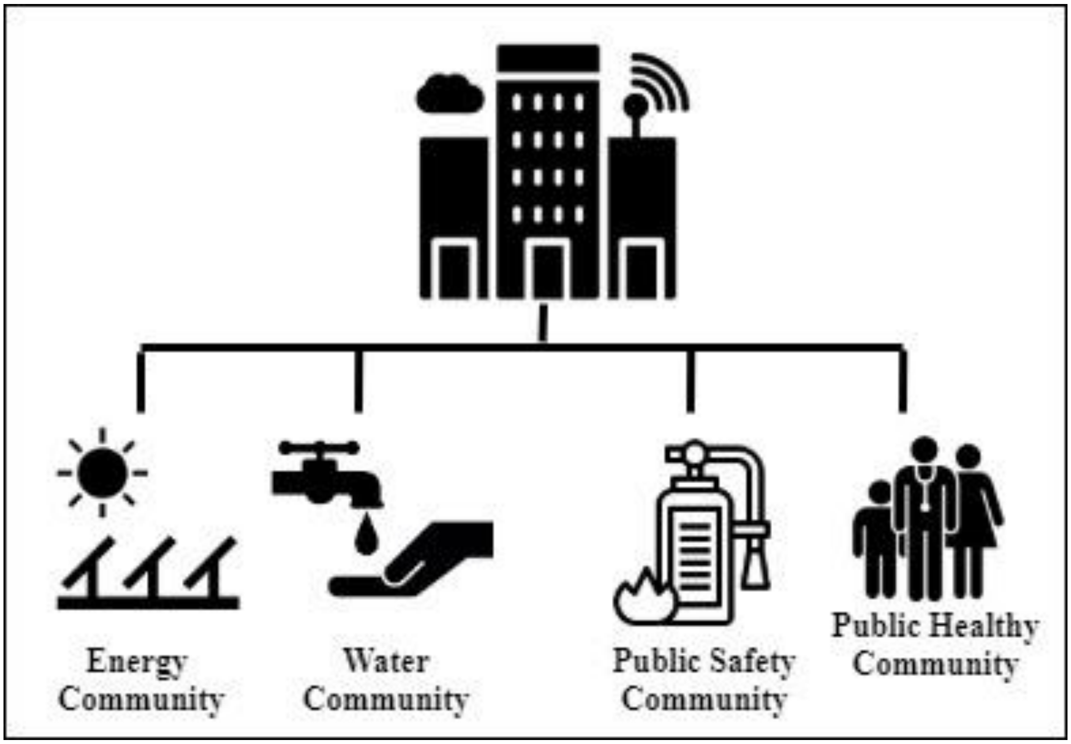

Figure 1. Community Services in Smart Cities

a) Energy Community Services:

Figure 1 shows the community services in smart cities. Energy Technologies in Society are growing more common and effective than traditional energy systems. They are autonomous, modular, and scalable compared with conventional systems of electricity. Such devices are typically situated in the region of the populations used to avoid long energy transmission. On the other hand, the capability of these systems is limited. Furthermore, Community energy systems or distributed systems consist of generation and storage systems, which usually consist of hybrid systems. Heating services provide a network of pipelines supplying heat to residential and non-residential customers. In centralized areas, for example, the dispersed heat is generated by cogeneration plants.

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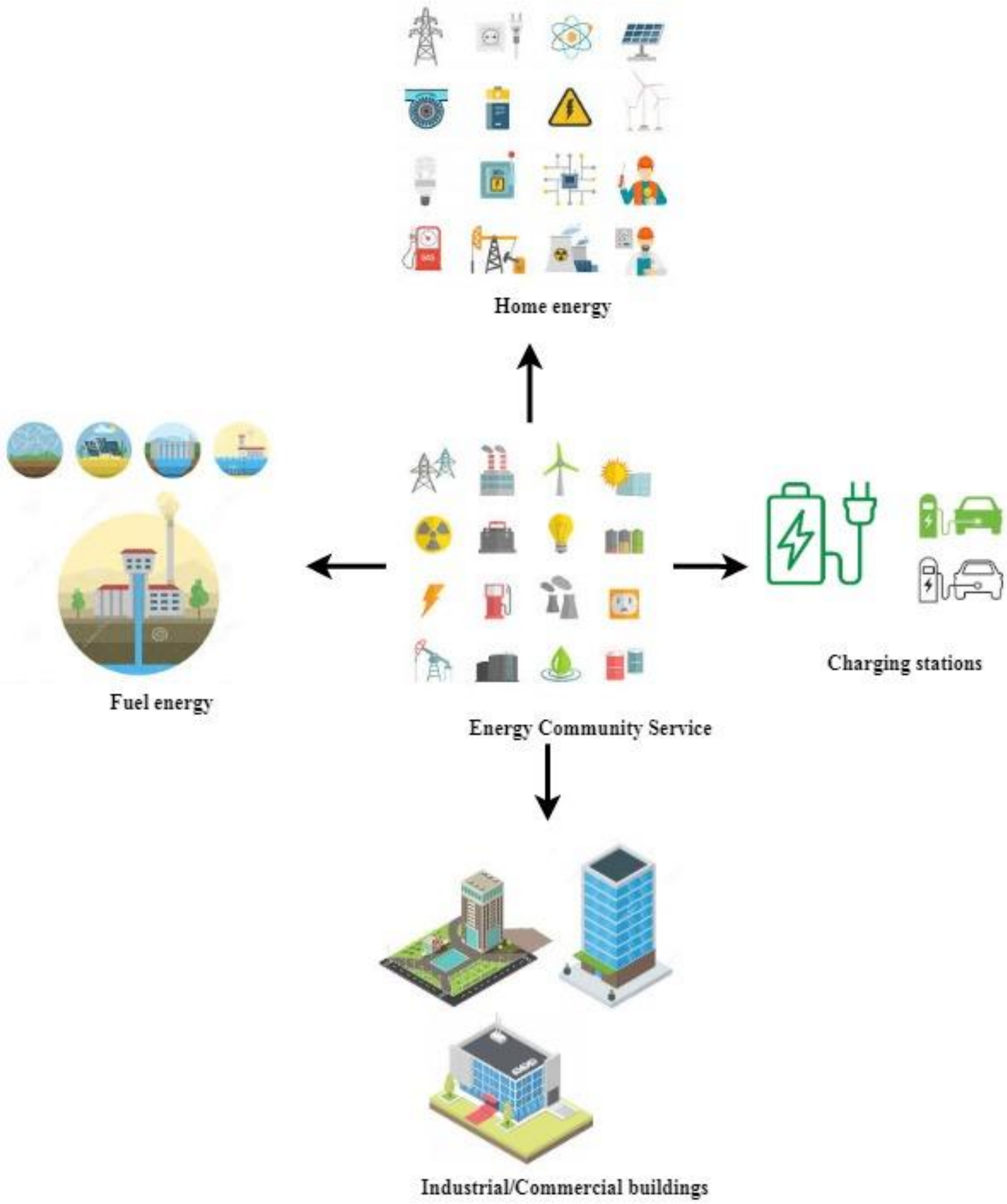

Figure 2 Energy Community systems in smart cities

In figure 2 shows that Smart homes can conserve electricity by watching what rooms need and use. The machine monitors the rooms and occupying and guarantees that the temperature is warm enough when using them. Home won't heal itself when people are away prematurely. A smart home provides homeowners with remote control of appliances, thermostats, lighting, vehicles, and other equipment via a smartphone or tablet. Wireless or hardwired systems can design intelligent homes. Intelligent home automation gives homeowners comfort and cost savings.

To provide the correct fuel for different users in the factory, fuel systems are required. The facilities to store, process, and deliver fuel to consumers shall be included. At all consumption points, alternative fuels (as required) should be offered. Fluid fuel and diesel fuel are the most widely used. At least one pump and its standby should be steam-powered, or other reliable power sources should be usable on

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liquid fuel. The fuel system, for example, is designed to supply the engine with a blend of fuel and air. The ratio of air and fuel shall be proportionate to the engine's speed and load.

The charging mechanism delivers electricity that drives the boot engine and runs electrical supplies such as lighting, audio systems, and air conditioning. The battery, the alternator, and the voltage regulator are its key components. When some charging device component is taken, it is impossible for a car to start or not to start. The generator holds the electricity that the motor starts at first and produces the power retained in the battery. The power regulator tests the electricity generated to ensure that the battery is not overcharged or impaired. Since a loose or worn belt will lead to too little battery charging, a power supply on most motors is operated by an accessory belt.

Commercial energy sources are defined as the energy sources used to produce and available on the market at a special price. Electricity, gas, and advanced petroleum products are the most marketable sources of commercial electricity. For different uses, such as manufacturing, assembly, steam and heating, heating and cooling processes, and illumination, heating, and air conditioning for construction, energy is used in the industrial field. Energy consumption requires essential chemical feedstocks in the manufacturing sector.

b) Water Community Services:

Figure 3. Water services in smart cities

The above figure 3 says that Cities use water to burn, sweep streets, and public water areas. Public drinking water sources for schools and libraries are provided to cities. Then there is a water source that restaurants, hospital centres, washrooms, dry cleaners, golf courses, hotels, car washrooms, beauty shops, barbershops, gas stations, fitness clubs, and other establishments in the area. There is an immense amount of water to operate a farm. Water is required for vegetables and grain crops. Water is used in the distribution, generating higher crop yield, fertilizers, herbicides, and plague goods. Water for irrigation is mainly found in fields. Hydroelectric power stations are the most effective water use, which absorbs the kinetic energy of dropping water to generate electricity. It is crucially important for operating machines for heating and steam and cooling hot metals such as steel. Many products, such as additives, medications, lotions, shampoos, cosmetics, cleaners, and drinks, are essential factors. Many people love fishing, boating, sailing, canoeing, rafting, swimming, and many other water-based leisure sports.

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c) Public Safety Community Services:

Figure 4 Public Safety Services in Smart Cities

In figure 4, Public protection requires awareness of the need, to develop a better place for people to work, live and move, for all parts of the community. This involves forming relationships to facilitate mutual protection between police, government departments, local governments, community associations, and persons. A community of residents recognizes dangerous or scary parts of the urban environment, such as poorly-lit parks, environments in which sewage and waste accumulates, or transit facilities that are not timed or placed properly. In the area of community and criminal justice, there are federal departments with specific responsibilities. To address the varied needs of the populace, the city needs to maintain a holistic and equitable approach to law enforcement and justice that facilitates just police and prosecution, improves the bond between law enforcement and members of the community, decreases reliance on offenders, and gives the individuals participating in the courts legitimate opportunity for education and accomplishment. In short, long-term wellness, protection, and security are achieved by resilient communities by collaborating with their society members to mitigate violence and enhance justice.

d) Public Health Community Services:

Figure 5 Public Health Services in smart cities

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As shown in figure 5, The science of security and enhancement of human wellbeing and the communities' health is environmental health. These activities are carried out by developing safe behaviours, the study into the prevention of disease and illness, and the diagnosis, avoidance, and response of infectious diseases. The purpose of a community service provider is to provide communities with quality facilities, including physical, dental, medical, and mental health care that provide direct and immediate access to vital resources. The scientific method for eliminating infectious diseases is an environmental health, while community health's general focus is on the contributors to a society's health. Public health workers understand how socioeconomic factors, such as the rate of jobs, nutrition, crime, and travel services, affect individuals. Public health professionals, decide how they care and educational services and the interests of the neighbourhood relate to the residents' lifestyles.

3.2 Briefly discuss the community data safety services in smart cities based on Artificial Intelligence (CSSV/SC/AI):

AI may be used for defence, stock exchange, rescue, and transportation in various fields. Complex considerations such as economic restructuring, environmental security, government, and mobility issues emerge when it comes to smart city development. For example, AI may be used to grow intelligent buildings sustainably. The is possible by the deployment of electronic devices, software-driven systems, or other advanced AI technology that view the building environment, take measures to improve/optimize system outcomes.

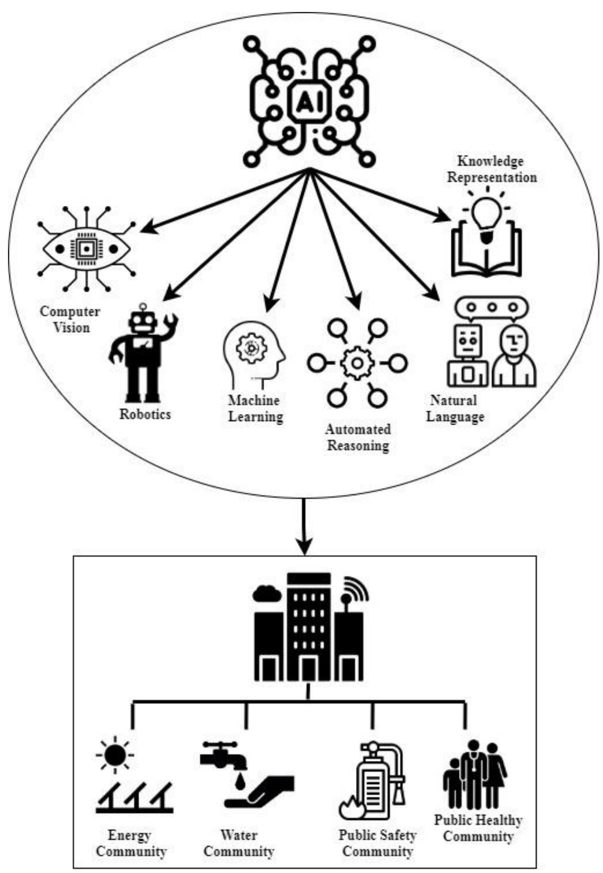

Figure 6. AI techniques in Community Services of Safety Precautions in Smart Cities

Figure 6 shown the techniques of community services of safety precautions in smart cities. AI is defined as an approximation of the intellect of the human being and human capabilities to create smart machinery,

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and it is conceptualized as a simulation of human intelligence and the machinery's abilities to solve complex problems. As a whole, artificial intelligence contains many subfields, including:

- Machine learning automates the creation of an analysis model. It uses a neural network, statistics, organizational analysis, and physics techniques to discover secret insights into the knowledge without directly programming where or how to look.
- A nerve network is a form of machine-learning focused on the functioning of the representation of human information by the brain. It is a computer system composed of interconnected units (like neurons), which process information by reacting to external inputs and passing information between individual units. The method involves several passes on the data to establish similarities and extract value from unspecified data.
- Deep learning uses large neural networks with a range of computation layers, leverages computational advancements, and improved teaching methods to learn complex data patterns. Photos and speech recognition are typical applications.
- The visual machine requires the identification of patterns and a profound comprehension of the image or film. As computers store, evaluate, and comprehend pictures, images or videos can be filmed in real-time, and their environment interpreted.
- Natural language processing is the capacity of computers to analyze, comprehend and produce human language, including speech, is a natural language processing device. The next step of NLP is natural language interaction, which helps people engage with machines in regular, daily activities.

While machine learning is based on machines' ideas for learning and adapting using experience, AI refers to a broader idea of machines' abilities to perform tasks "smartly" AI is a wider term for creating intelligent machines that can mimic human reasoning and behaviour. Machine learning is an algorithm or derivative of AI that helps computers learn from data without being directly programmed.

a) Artificial Intelligence Based Smart Energy Community Management:

Public sector energy efficiency is a major concern in the sense of smart towns because buildings have the largest energy users, particularly public buildings, including schools, healthcare, government, and other large-scale public institutions. The primary objective is to provide the machine learning community with useful guidance that provides basic information and improves unique methods of estimating machine learning algorithms' energy.

For more than three years, the target area had the experience of using business and commercial facilities based on below equation 1.

$$\boldsymbol{g = T_{\frac{b}{2}} * \sqrt{\frac{l(1-l)}{t^2_{\frac{b}{2}} * l(1-l)}}} \quad \text{for} \quad \boldsymbol{m = t^2_{\frac{b}{2}} * l(1-l)} \qquad (1)$$

The parameters are m as total energy distributions, g as a total energy supply in the area, t as the time, and l for energy consumption.

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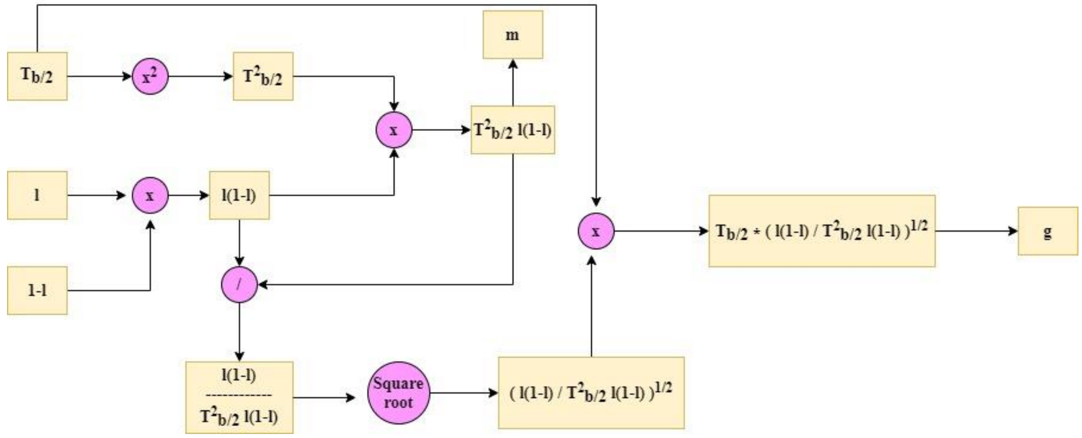

Figure 7. Energy services for Commercial purposes in Smart City

The technology framework could be used by public administration to create a forum for the rehabilitation of public buildings to minimize energy usage and expense and link these intelligent public buildings to the intelligent cities in equation 1 and figure 7.

The symmetric mean average percentage error is:

$$\boldsymbol{Y = 100\frac{1}{s}\sum_{k=1}^{s}\frac{|z_r - z_o|}{|z_r| + |z_o|}} \tag{2}$$

Here equation 2 as z_r is the real output, z_o is the obtained output and s is the number of samples. To enable the comparison of different models' results, the same training set is used for the learning phase in AI, while the same hold-out test sample is used to finally evaluate the model performance.

b) Artificial Intelligence Based Water Community Management:

The paper introduces a robust modelling system to help water management practitioners with time-saving and nuanced decision-making tasks and harmonize commercial uses of water supplies. A process-based model is typically used for the water level calculation. These models should be chosen carefully to forecast real changes in water levels. Many parameters, including variables influencing the water level, take a long time to calibrate to ensure the model's predictive performance. In The study, three statistical indicators, correlation (C), Efficiency (E), and mean square error (MSE), and peak level (PL), have been used to evaluate the performance of the machine learning models applied to predict the water level at the ungauged areas.

The equations for the statistics are:

$$\boldsymbol{C = \frac{\sum(P_e - \overline{P_e})(Q_{ev} - \overline{Q_{ev}})}{\sqrt{\sum(P_e - \overline{P_e})^2} * \sqrt{\sum(Q_{ev} - \overline{Q_{ev}})^2}}} \tag{3a}$$

$$\boldsymbol{E = 1 - \frac{\sum(P_e - Q_{ev})^2}{\sum(Q_{ev} - \overline{Q_{ev}})^2}} \tag{3b}$$

$$\boldsymbol{MSE = \sqrt{\frac{\sum(P_e - Q_{ev})^2}{m}}} \tag{3c}$$

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$$PL = 1 - \frac{\sum(Q_{ev,k} - P_{e,k})^2}{\sum(Q_{ev,k} - Q_{ev,k} - 1)^2} \quad (3d)$$

The above equations 3a-3d said that P_e is the expected value, Q_{ev} is the evaluated value, m is the median of level and k is the waterline level. Three metrics have been used because they had different definitions, and with each model, the simulation output is different in terms of water level characteristics (e.g. pattern, peak value, error). C is an indicator showing the degree of the linear relationship between the simulated and observed data, the range of which is represented as 1 to 1. The E is an indicator that shows how well the plot of simulated and observed data fits on a 1:1 line; The MSE, which is the standard deviation of the residual, namely the difference between the simulated and observed values, is used as an indicator of how much error the simulated results contain, as compared to the observed values. The PL measures the relative magnitude of the residual variance to the variance of the errors estimated from the model.

c) Artificial Intelligence Based, Public Safety Community Services:

This is a blueprint for the workplace's safety dynamic consisting of a system of normal differential equations (ODEs). The goal is to treat workers' relationships and the dissemination of healthy and dangerous habits, which are close to the propagation of infectious diseases in a human or animal society.

Let us consider the dynamics of The four sub-people is proposed to be governed by the differential model equations,

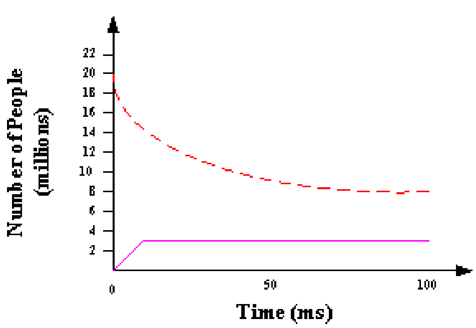
$$\frac{dSP}{dt} = np_{SP} + s_0 * SP * UP - s_1 * SP * UP - s_2 * SP + s_4 * SIP \quad (4a)$$

$$\frac{dUP}{dt} = np_{UP} - s_0 * SP * UP + s_1 * SP * UP - s_3 * SP + s_5 * UIP \quad (4b)$$

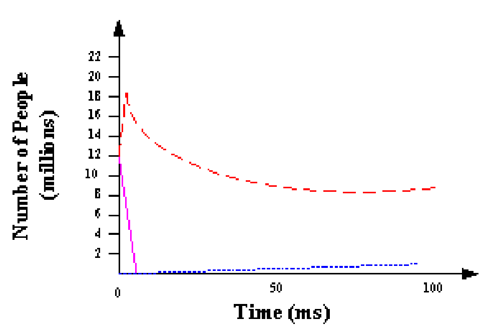
$$\frac{dSIP}{dt} = \beta_{SP} * s_2 * SP - s_4 * SIP \quad (4c)$$

$$\frac{dUP}{dt} = \beta_{UP} * s_3 * UP - s_5 * UIP \quad (4d)$$

The parameters in the equations 4a-4d are, SP as the safe people, UP as the unsafe people, SIP is safe people with injury, UIP as unsafe people with injury, s_0, s_1 the unsafe side to safe side and vice versa, s_2, s_3 the unsafe people are injured to be death, s_4, s_5 the injured people to be recovered, β_{SP} the particular area people are injured, β_{UP} the particular area people have died. People who have a secure or most dangerous approach to their position are known. Another perceived factor in terms of its protection is the general composition of the living room, instead of individual levels being considered as a scale from vulnerable to protected and monitored over time.



a) $SP_0 = 0, \; s_0 - s_1 = -1$



b) $SP_0/SIP_0 = 0, \; s_0 - s_1 = -1$

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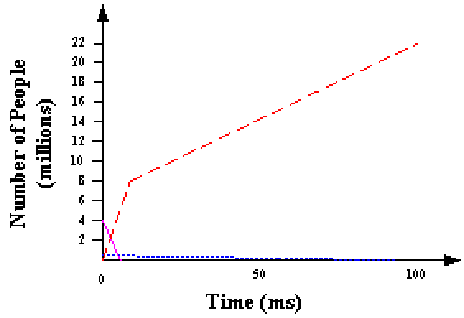
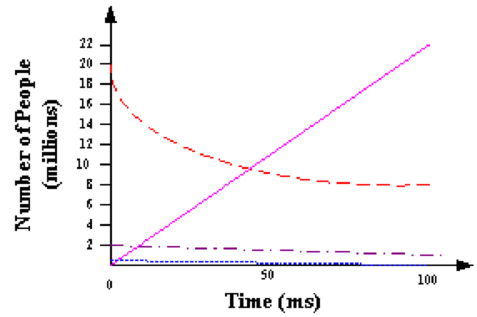
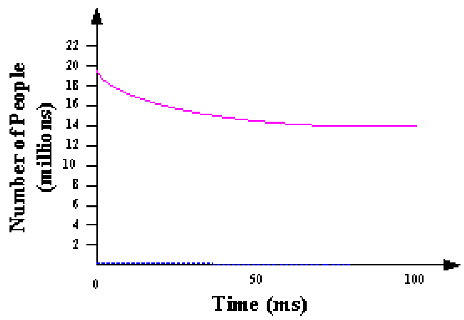


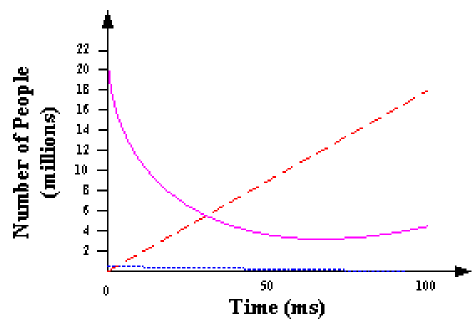
c) $SIP_0 = 0,\ s_0 - s_1 = -1$



d) $SP_0 = 0,\ s_0 - s_1 = 0$



e) $SP_0/SIP_0 = 1,\ s_0 - s_1 = 0$



f) $SIP_0 = 0,\ s_0 - s_1 = 0$

Figure 8: The above graph shows variations in people of safe (pink line), unsafe workers (orange line), safe injured workers (blue line) and unsafe injured workers (brown line).

Cumulative contact frequencies, which produced a degree of pressure intensity to translate into safe or dangerous behaviour, became the study's key focus. Considering the distinction between safe and dangerous conversion parameters, multiple physical actions that could be found in the model could occur, as mentioned in figure 8.

d) Artificial Intelligence Based, Public Health Community Services:

In hospitals, mapping and treating infectious disorders and personalizing patient procedures have been simpler by computer training. It will affect the performance of hospitals and health services and reduce the costs of healthcare. In the healthcare market, machine learning is one such field that is increasingly being acknowledged.

$$\mathbf{min}(\boldsymbol{H}) = \sum_{s=1}^{m} \left|(\propto_s + \boldsymbol{u_s} * \boldsymbol{P_s} + \boldsymbol{t_s} * \boldsymbol{P_s^2}) - \left(\sum_{s=1}^{m} \frac{\propto_s + u_s * P_s + t_s * P_s^2}{m}\right)\right| \quad (5)$$

The parameters of the above equ 5 as $HIR_s(P_s) = \propto_s + u_s * P_s + t_s * P_s^2$, for $s = 1,2, \ldots \ldots \ldots m$ health issue rate, $\min(H)$ minimize the health issues, $\propto_s$ as the distance between street s, u & t are the coefficients. AI health-care programs encompass those inherent in machinery-learning research, logistic complexities in an application, obstacles to acceptance, and improvements to the sociocultural or trajectory required. The robust clinical appraisal is important, focused on understandable and best-

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adapted measurements to technical precision indicators to include continuity of treatment and patient performance.

IV. Experimental setup of AI approaches for community data safety and vulnerability in the smart city (CSSVSC/AI):

The paper addressed the AI technologies that can benefit from commercial platforms and security analysis in intelligent cities. Both intelligent systems work closely with human departments to build a rapid response system. ID and 'suspicious irregularities' are provided easily in the AI. Smart cities with these technologies are the ideal combination of human-machinery for secure service. These preliminary applications show that CSSVSC/AI moves intelligent cities to a functional structure from an unrealized idea. The following characteristics are compared with existing approaches:

(i) Determination of Energy community services in the smart city:

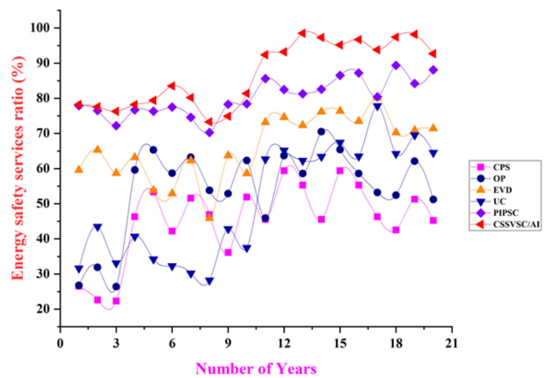

Figure 9. Determination of energy safety of community services in a smart city.

The provides a smart energy community system that consists of smart houses, non-intelligent consumers, and a local energy pool to promote the share of energy between communities. The proposed model of the city encourages communities to commercialize unused electricity to optimize the usage of renewables. Figure 9, several numeric analyses have been carried out under multiple scenarios to assess the feasibility of the proposed energy system structure and the AI algorithm.

(ii) Analysis of Water community data safety services:

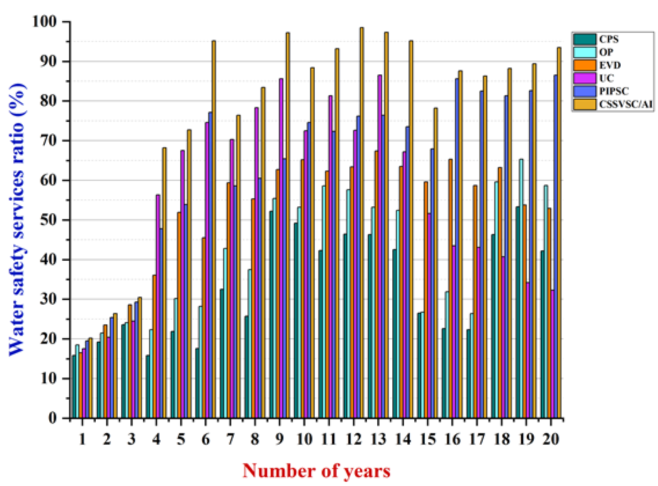

Figure 10. Analysis of Water community data safety services

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Modelling water variables is a significant move for any marine system concerning water management. As a consequence of Figure 10, the AI approaches typically have improved water resource modelling than the traditional methods. These techniques are applied with new technologies and incorporated into various science disciplines; improved forecasts can be provided. The literature study found that the primary concepts for effective simulation are preprocessing the frequency of time series, selecting the main variables, and selecting the most suitable time scale.

(iii) Illustration of improving public safety services using AI:

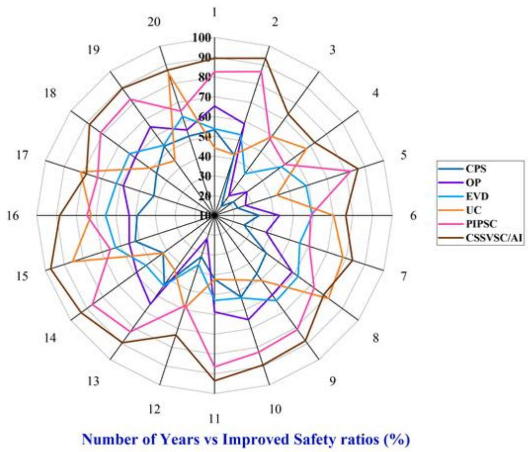

Figure 11. Illustration of improving public safety services using AI

Figure 11 aims to communicate public safety space characteristics and offer those solutions by collecting data from a range of data outlets, reviewing them and connecting them, providing smart luminaires with real-time knowledge, and adjusting their characteristics to encourage alertness ideally deter criminals before they can take action. Each luminaire may integrate such cameras in an optimum scenario concerning surveillance and safety. However, as it relates to HS's control and human activity suggested in the present article, it is important to illustrate the ethical aspects of smart AI application growth, rollout, and implementation.

(iv) Reduction of Health issue for the public community in smart cities:

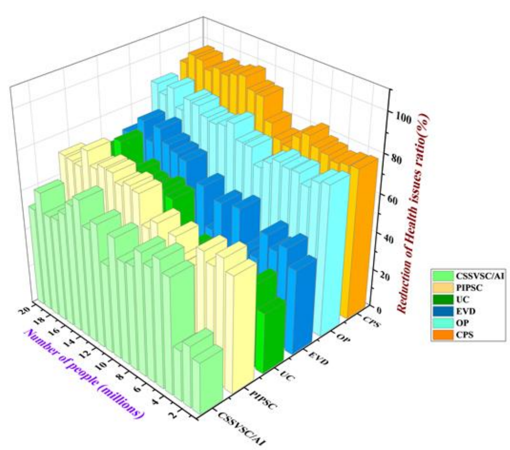

Figure 12. Reduction of Health issue for the public community in smart cities

Figure 12 shows that AI-based software may be used to provide medical care for people with existing medical conditions. The state-of-the-art technology is vital for making health care a more determined operation, with measurable outcomes, more important for intelligent cities' lifestyle. Community protection and vulnerability prevention will ensure that The sector continues to increase and invent new ways of keeping us more fit and safer.

(v) Overall performance of community data safety using AI in smart cities:

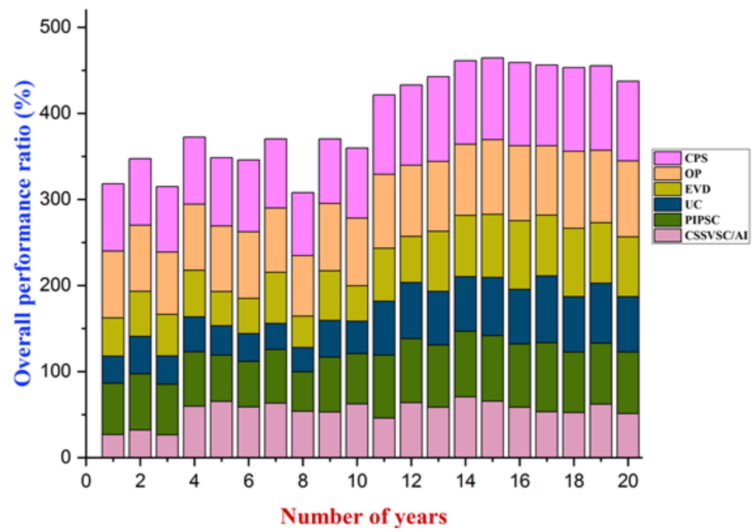

Figure 13. Overall performance of community data safety using AI in smart cities

Table 1: Overall comparison table of community data safety using AI in smart cities

Number of Years	CPS	OP	EVD	UC	PIPSC	CSSVSC/AI
1	26.75	59.6	31.6	44.2	77.9	78.2
2	31.9	65.3	43.5	52.6	76.5	77.6
3	26.4	58.7	33.1	48.3	72.2	76.3
4	59.6	63.2	40.7	54	76.7	78.2
5	65.3	53.8	34.2	39.5	76.3	79.4
6	58.7	52.9	32.3	41	77.5	83.5
7	63.2	62.3	30.2	59.6	74.6	80.2
8	53.8	45.9	28.2	36.5	70.3	73.3
9	52.9	63.7	42.8	57.6	78.3	74.9
10	62.3	58.6	37.5	41.3	78.4	81.4
11	45.9	73.2	62.7	61.5	85.6	92.4
12	63.7	74.6	65.2	53.6	82.5	93.2
13	58.6	72.3	62.3	69.6	81.3	98.5

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14	70.5	76.2	63.4	71.2	82.6	97.3
15	65.4	76.4	67.4	73.5	86.5	95.2
16	58.6	73.5	63.5	79.5	87.2	96.7
17	53.2	80.2	77.8	70.6	80.4	93.8
18	52.4	70.3	64.2	79.4	89.4	97.4
19	62.1	70.9	69.5	70.3	84.2	98.2
20	51.2	71.4	64.5	69.4	88.1	92.7

Given extremist attacks on busy public places, particularly security aspects of shopping centres and the more bordered and still open rail system, there is a general anxiety about neighbourhood security, supportive of the busiest cities as shown in table 1. As Figure 12 demonstrates, implement protection and privacy approaches for a CSSV/AI blend, and accelerate the implementation and deployment of cities and communities' replicable, secure, privacy-enhancing, and trustworthy technologies. The protection and privacy facets of all related fields of transport in the SMT, public security, electricity, water, and broadband are key cross-cutting elements.

Therefore, the final experimental results are achieved various services in community-based AI approaches of smart cities are energy safety services is 86.92%, Water community data safety services are 78.3%, improving public safety services using AI ratio is 85.46%, Health issue reduces for the public community is 87.02% and finally, overall performance ratio is 91.02%.

V. COCLUSION

As smart cities are still focusing on their security issues, there inevitably are a range of opportunities for more study. The approach suggested is an integrated architecture of the community service framework platform, which offers an integrated and intelligent community service-connected to smart cities and intelligent homes. And the interconnected community service network offers a framework for people, items, contexts, and programs to mitigate vulnerabilities, including electricity, water, public protection, and Public Health related to the intelligent city and the clever house. The interconnected Community Service Network will help develop a new infrastructure for smart city services and create a new business smart community services model, CSSV/SC/AI.

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