



Animal Herd Welfare Management System(Ahwms)

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Abstract: The Animal Herd Welfare Management System (AHWMS) is an online platform designed to help farmers care for cows and buffaloes. It includes features like health tracking, disease prevention, and veterinary support. Farmers can also access government schemes and livestock trading options through the system. By using AHWMS, farmers can enhance animal health, boost productivity, and make informed decisions. This digital solution makes livestock management easier and contributes to rural development by connecting farmers with essential resources

Index Terms -Animal welfare, herd management, livestock health, technology, digital platform, agriculture.

I. INTRODUCTION

The Animal Herd Welfare Management System (AHWMS) is a state-of-the-art digital solution designed specifically to cater to the requirements of livestock owners, farmers, and animal welfare associations. It is a unified platform that offers centralized management of animal health, welfare, and productivity through combined technology and veterinary input. Through efficient access to core services, this system seeks to improve the quality of livestock care, enhance disease prevention, and facilitate sustainable farming. With the growing need for effective herd management, the AHWMS provides an easy-to-use platform where users can schedule veterinary consultations, access emergency services, and obtain routine health checkups. The online veterinary services of the platform, available 24/7, provide farmers with expert advice and timely support, even in remote locations, minimizing the loss of animals due to delayed treatment. In addition, the system bridges users to the government welfare schemes such as the Punyakoti Adoption Scheme and AHIDF financial aid, enabling livestock farmers to access the required resources for infrastructure development and herd growth.

This platform also informs users on how to take good care of animals through video materials and educational content and enables them to make informed decisions regarding their herds. AHWMS is not just about health management — it also enables livestock trade with features to buy cows and buffaloes, find various breeds, and purchase accessories from the website itself. Murrah, Jaffarabadi, and Bhadawari buffaloes are promoted with descriptions for users to make informed decisions and select the appropriate breed according to their requirements.

Moreover, the system includes a dedicated helpline offering round-the-clock assistance for general inquiries, emergency care, and technical support. Whether it's guiding users through the platform or providing life-saving first-aid instructions during critical situations, the helpline ensures that livestock owners are never left without support. Through the integration of welfare services, health management, and e-commerce under one platform, the Animal Herd Welfare Management System revolutionizes livestock care delivery. It minimizes operational pressures on farmers, enhances animal lifespan, and supports sustainable development of the livestock industry. This platform is a symbol of advancement, enabling communities to promote better standards of animal welfare while maximizing productivity and sustainability [8].

II. LITERATURE SURVEY

Livestock well-being, production, and health need to be managed for agricultural sustainability and rural development. Either technological or policy-based solutions have been provided with each focusing on a particular arena of animal well-being. Yet, since these are not integrated, farmers face challenges in acquiring a general, easy-to-apply solution. This survey showcases major research and current systems and how AHWMS extends those to provide a comprehensive, all-in-one-stop-shop solution to herd welfare management.

1. Tele-Veterinary Services and Online Health Consultations

Tele-veterinary services have been a lifesaver for cattle management, particularly in rural and remote locations. Research indicates that online platforms such as VetOnline and TeleVet minimize response time for medical consultation and enable farmers to obtain expert counsel without travel (Smith et al., 2021). These platforms, however, do not have continuous care facilities or real-time tracking systems. AHWMS fills this void by providing 24/7 emergency care, regular health check-ups, and customized care suggestions — all from one portal.

AHWMS Key Contribution: Combines emergency treatment and tele-consultation with regular health monitoring, offering farmers an integrated healthcare system for their animals

2. IoT and Smart Herd Monitoring Systems

Studies on IoT-based animal farming systems indicate that wearable sensors can monitor vital health measures such as body temperature, heart rate, and mobility patterns (Patel et al., 2020). The systems can alert farmers to possible health hazards so that early treatment can be undertaken. IoT systems are, however, costly and maintainable for small farmers.

AHWMS Key Contribution: While not solely reliant on IoT, the system offers manual monitoring of health checks, online consultations with vets, and early symptom detection advice — technology-enabled care made accessible and easier to afford [1].

3. Animal Welfare and Adoption Schemes Studies

Government-funded programs, such as the Punyakoti Adoption Scheme, promote animal welfare by making people more aware of adopting and sponsoring cattle. Studies have proven that such programs improve animal care and reduce abandonment rates (Kumar & Reddy, 2019). However, public response is typically low due to inadequate awareness and absence of digital connectivity. **Significant Contribution of AHWMS:** Directly incorporates adoption programs on the website, providing users with access to educational resources, adoption options, and current welfare information to enhance increased community participation.

4. Livestock Marketplaces and Farmer E-Commerce

Virtual marketplaces for livestock such as AgriBazaar and FarmersFriend make buffalo and cattle purchasing and selling easier (Sharma et al., 2022). Though these sites facilitate transactions, they do not typically provide post-sale assistance with respect to animal welfare or animal health.

Significant Contribution of AHWMS: Blends healthcare and e-commerce by enabling farmers to purchase livestock, schedule vet check-ups, and take advantage of welfare schemes under one roof, thus creating a good post-purchase care system [2].

5. Emergency First-Aid and Critical Care

Early treatment via emergency veterinary medicine can significantly improve livestock survival (Jones & Williams, 2020). Science emphasizes the importance of first aid guidelines and immediate medical care in the management of common health issues such as wounds, calving problems, and infections (Jones & Williams, 2020).

AHWMS's Key Contribution: Provides step-by-step first aid techniques, access to online vets at their disposal, and an emergency helpline, allowing farmers to act promptly at times of extreme need.

6. Farmer Education and Veterinary Knowledge

Education and awareness play a significant role in guaranteeing livestock welfare. Research has led to the realization that exposure to learning materials and expert advice regularly enhances farmers' decision-making and leads to enhanced animal care (Singh et al., 2021).

AHWMS Key Contribution: Offers educational webinars, articles, and videos on animal health, disease prevention, and nutrition that allow farmers to continuously improve their skills and knowledge [3].

7. Accessible and User-Centered Design

The majority of existing platforms are designed with large-scale commercial farms in mind, and therefore they are either too sophisticated or too expensive for small-scale farmers. Research calls for minimalistic, easy-to-use platforms with features that are usable even in low-connectivity regions (Gupta & Verma, 2022).

Main Contribution of AHWMS: With accessibility and usability as fundamental design requirements — having an easy-to-use interface, being accessible through mobile, and provision of support for a number of languages to accommodate a large clientele.

Key Takeaways for AHWMS:

From the literature review, it's clear that while each of these areas has independent solutions in veterinary services, welfare programs, animal e-commerce, and education, AHWMS integrates all these areas into one system. The integrated, affordable, and user-friendly platform bridges important gaps, allowing farmers to better manage their livestock and promote long-term herd health

III. SYSTEM ARCHITECTURE

The Animal herd welfare management system (AHWMS) is a well-organized platform that aims to simplify and enhance the care and welfare services provided to livestock. It offers a user-friendly and structured platform where farmers, veterinarians, and adoption agencies can easily manage herd information, request veterinary consultations, and seek emergency support. With its user-friendly interface, the platform guarantees that crucial services like health monitoring, adoption programs, and veterinary support are readily available, leading to enhanced animal welfare and more efficient livestock management. The system enables users to sign up, keep track of their herd, and request services through an interactive interface. Veterinary visits, urgent care, and adoption inquiries are handled systematically, guaranteeing prompt responses. A centralized database effectively stores user details, livestock health records, service histories, and transaction logs, facilitating easy access and tracking of essential information. Furthermore, automated notifications assist users in staying updated on appointment schedules, adoption status, and emergency responses.

Created with scalability and adaptability in mind, the system can be implemented in different regions, including rural and semi urban areas. The architecture is designed to accommodate future developments, including additional services and enhanced data management capabilities. By streamlining service delivery and optimizing livestock management, AHWMS improves animal welfare and accessibility for users. The system adheres to a well-defined operational flow, guaranteeing the smooth integration of its core functionalities. Users engage with the platform using a user-friendly interface, facilitating effortless navigation and swift access to essential services. The request handling mechanism guarantees that every service request, whether for veterinary consultation, emergency care, or adoption, is handled promptly, reducing any potential delays.

Additionally, the system improves data organization and accessibility, enabling authorized users to update and retrieve essential information. The architectural design facilitates seamless collaboration among different stakeholders, guaranteeing that livestock health and welfare services are provided promptly. By keeping organized records and setting up automated notifications, the system maximizes resource usage and enhances the overall efficiency of animal welfare management. The platform is built to ensure long-term sustainability, enabling seamless integration with supplementary services like government welfare programs, livestock insurance, and digital health monitoring tools. Future updates can incorporate more advanced data analytics and reporting capabilities to improve decision-making processes. By connecting technology and livestock management, AHWMS plays a crucial role in enhancing the efficiency, organization, and accessibility of the welfare system for farmers and those responsible for caring for livestock

IV. MODULES AND FEATURES

The Animal Herd Welfare Management System (AHWMS) is a complete platform designed to help farm animal proprietors in managing their animals correctly. It incorporates numerous key modules that cater to extraordinary elements of animal welfare, making sure accessibility, streamlined file-retaining, and established approach to farm animals control. The machine allows farmers, farm animal proprietors, and animal welfare companies to screen the health of their cattle, get right of entry to veterinary services,

interact in accountable trading, and make sure the well-being of their animals. The person Profile Management module performs a crucial role in preserving person user money owed. Customers can sign in at the platform with comfortable login credentials and manage their profiles with updated data. The machine permits livestock owners to maintain special facts in their animals, along with species, breed, vaccination records, feeding schedules, and health checkup dates. This guarantees that proper documentation is to be had always for tracking the overall properly-being of the animals. The ability to manage a herd in an prepared manner enables customers to become aware of potential health dangers, agenda remedies on time, and plan future farm animals purchases based totally on to be had sources.

The net Veterinary Services module offers vital healthcare assist for animals, making veterinary care extra on hand, particularly in rural areas in which expert veterinary offerings won't be readily to be had. In case of medical emergencies, the gadget provides 24/7 emergency help, allowing cattle proprietors to right away hook up with veterinary professionals through video consultations, chat-based totally scientific advice, or direct helpline calls. This selection is crucial for coping with vital conditions, such as surprising illnesses, accidents, or childbirth-related complications in animals. Additionally, the platform facilitates scheduled weekly health checkups, permitting farmers to seek advice from veterinarians for ordinary fitness critiques. Those checkups help in the early detection of diseases, making sure that preventive measures can be taken before the condition worsens.

The machine additionally provides customized hints for cattle care, which includes dietary advice, vaccination reminders, and general healthcare guidelines. To sell ethical alternate and inspire responsible cattle management, the gadget features an Animal Shopping for and Promoting Marketplace wherein users can purchase or sell animals securely. Farmers and cattle owners can be listing their animals for sale with complete details, consisting of breed, age, fitness popularity, vaccination records, and charge. This creates a transparent environment in which buyers can get entry to dependable statistics before creating a buy. The marketplace ensures a relaxed transaction environment, permitting demonstrated shoppers and sellers to interact in seamless buying and selling. Customers can also request veterinary inspections earlier than finalizing a deal, ensuring that animals are in precise health and suitable for purchase.

The platform also helps Adoption and Purchase Schemes, together with the Punyakoti Adoption Scheme, which inspires people to adopt cows and make contributions to their care. The system affords digital adoption certificates to users who take part inside the initiative, ensuring authenticity and right tracking of followed animals. This module performs a considerable function in promoting animal welfare and inspiring public participation in ethical animal care. To enhance cattle control and make sure that farmers have get admission to necessary equipment, the platform includes an add ons marketplace. This marketplace offers an expansion of cattle-related equipment and accessories, permitting customers to purchase crucial gear for animal care. Items which includes Buffalo Milking Machines, automatic Waterers, and Hoof Trimmers are available for each cows and buffaloes. The machine provides an intuitive interface in which customers can browse merchandise, add items to their cart, and continue with secure transactions. This guarantees that livestock owners have smooth get entry to essential equipment for keeping the health and productiveness in their animals.

The Helpline and Guide module ensures that customers acquire assistance each time wished. The gadget offers multiple channels for support, together with well-known patron help for queries associated with platform utilization, technical assist for troubleshooting gadget-related troubles, and an emergency veterinary helpline for pressing clinical assistance. By using integrating this option, the platform ensures that customers can speedy remedy problems and obtain expert guidance on handling their cattle efficaciously. By using combining these modules, the Animal Herd Welfare Management Device provides an all-in-one answer for livestock owners. The system not handiest enhances animal care and management however also promotes moral buying and selling, accountable adoption, and the use of modern equipment to improve productivity. The dependent approach of the platform ensures that farm animals owners can access vital services without problems, thereby fostering a properly-organized and sustainable atmosphere for animal welfare.

V. DATA FLOW

The Animal Herd Welfare Management gadget (AHWMS) Flowchart visually represents the person journey inside the platform. It outlines numerous procedures, together with user profile control, browsing services, reserving veterinary consultations, emergency care, animal adoption or buy, and helpline aid. by following the flowchart, users can apprehend the based workflow of the system, ensuring easy navigation and efficient interaction with the platform's capabilities. This Animal Herd Welfare Management system (AHWMS) Flowchart visually represents the consumer adventure in the platform. It outlines numerous techniques, such as person profile control, surfing offerings, reserving veterinary consultations, emergency care, animal adoption or purchase, and helpline help. by using following the flowchart, users can recognize the established workflow of the system, making sure smooth navigation and green interaction with the platform's features.

Animal Herd Welfare management gadget (AHWMS) website serves as a centralized platform designed to offer comprehensive help for animal care and control. As shown in the photograph, the homepage features a person-pleasant interface with clean navigation options, inclusive of offerings and Schemes, Veterinary, Animals, and Helpline. The colorful layout represents the middle capabilities of AHWMS, which includes veterinary assistance, animal marketplace, and emergency support. The internet site is built to make sure that farmers, veterinarians, and animal welfare organizations can efficaciously control farm animals, get right of entry to healthcare offerings, and take part in adoption or purchase techniques. Users can log in or register through the authentication page to access their profiles. Once logged in, they can manage their user profiles by viewing and editing their personal details. Additionally, the system allows users to manage their herd details efficiently, ensuring streamlined record-keeping and easy access to relevant information Users can discover diverse services and schemes furnished by using the government thru this segment.

The platform gives a convenient way to access vital information about welfare applications related to animal care, veterinary services, and financial help. By using watching informative films, users can advantage a clear know-how of the way these schemes work, their eligibility criteria, and the application technique. Those movies provide step-by-way-of-step steerage, ensuring that farmers, animal caretakers, and welfare organizations can effortlessly enjoy the available programs. The adoption schemes available via the platform assist users apprehend how they could adopt animals responsibly. Those schemes include details about government initiatives that sell ethical adoption, rehabilitation, and rehoming of animals. Users can also discover subsidy programs that provide financial resource for getting livestock, enhancing animal shelters, and getting access to veterinary healthcare. The platform guarantees that everyone government-supported projects are virtually explained to the users, permitting them to make knowledgeable choices. Moreover, the website offers direct hyperlinks to YouTube motion pictures where specified factors of numerous schemes are available. Users can readily watch these movies to deepen their know-how and clarify any doubts they'll have. The aim of this section is to simplify access to crucial schemes, permitting users to gain from government initiatives without confusion. The films serve as an educational tool, making it less difficult for customers to navigate the software technique and maximize the benefits of these services. Via this based approach, the platform ensures that farmers, veterinarians, and animal welfare groups receive the vital aid to enhance animal care and control [6].

On-line Veterinary Care affords vital fitness assist for cows and buffaloes, making sure their nicely-being via emergency offerings and weekly consultations. The platform offers a convenient manner to get entry to veterinary assistance remotely, allowing farmers and animal caretakers to address fitness worries without delays. The Emergency Veterinary services function offers 24/7 on line emergency care assist for crucial cases. users can get entry to emergency help via chat or video consultations, making sure instantaneous reaction in pressing conditions. moreover, first-aid steerage is furnished to help manage emergencies earlier than expert intervention. This carrier permits farmers to request immediately veterinary assistance every time essential, making sure the well timed care of their farm animals. For normal fitness management, the Weekly Veterinary Fitness Checkups service lets in users to schedule consultations for ordinary wellbeing assessments. these consultations consciousness on preventive care, presenting trendy fitness recommendation, nutrients recommendations, and customized care guidelines. ordinary checkups help keep the general properly-being of cattle, preventing capacity health issues earlier than they emerge as severe. The Veterinary consultation reserving form allows customers to agenda online veterinary consultations without problems. users need to enter their name, smartphone range, and electronic mail address. they can

choose the sort of consultation, consisting of emergency care or routine checkups. moreover, they are able to select their preferred date and time for the consultation. In reference to Figure (6), this gadget guarantees quick and green veterinary assistance for farm animals proprietors [4].

The platform provides detailed information about various breeds of cows and buffaloes, including Holstein, Jersey, Ayrshire, Murrah, Jaffarabadi, and Surti. Each breed has unique characteristics such as milk production capacity, adaptability to different climates, and maintenance requirements. By understanding these factors, farmers and livestock owners can make informed decisions to select the most suitable breed for their dairy or farming needs, leading to improved productivity and better livestock management [2]. Along with breed information, the platform offers a seamless purchasing process for animals and farming accessories. Users can browse and select their preferred cow or buffalo breed or choose from a variety of farming essentials. Once the selection is made, they need to complete a purchase form, entering personal details, quantity, and delivery information. Secure transactions are ensured through a trusted payment gateway that supports credit cards, UPI, and other online payment methods. After the purchase is confirmed, users receive an order confirmation along with tracking details to monitor the delivery status. This structured and secure process ensures a hassle-free shopping experience for farmers and livestock owners [2]. The platform provides a streamlined purchasing gadget for cows, buffaloes, and farming accessories.

Users can effortlessly entire their buy via filling out a based shape, which includes getting into their full name, deal with, cellphone variety, quantity, and favored fee method. The gadget supports cozy transactions thru diverse payment options, which includes credit score cards and UPI. Once the acquisition is confirmed, customers get hold of an order affirmation in conjunction with tracking details, making sure transparency and a problem-loose revel in. This efficient procedure simplifies cattle and accent procurement, making it handy for farmers and livestock proprietors [5]. The platform gives an entire helpline dedicated to animal welfare help, ensuring that cattle proprietors and farmers reap timely assist every time favored. This company is split into 3 key schooling: popular assist, which offers steerage on every day issues related to animal care and control; Emergency Care, which connects clients to veterinary professionals for pressing scientific needs; and Technical guide, which permits customers remedy tool-related problems. each magnificence is hooked up to a committed touch big range, making it smooth for clients to attain out for help at any time with 24/7 availability, the platform guarantees that animal proprietors can speedy get proper of access to expert advice and emergency intervention without delays. whether or not or no longer or no longer it's searching out suggestions for cattle fitness, addressing critical medical situations, or troubleshooting platform-related problems, this installation helpline enhances comfort and normal overall performance. via manner of streamlining manual offerings, the platform strengthens animal welfare manipulate, ensuring a problem-unfastened enjoy for farmers and livestock caretakers.

VI. IMPLEMENTATION

Animal Herd Welfare Management System Animal is an advanced web-based platform that increases cattle-based administration through a structured user approach for animal wells. The system ensures smooth operation by integrating a dedicated helpline for intuitive user management, essential welfare services, veterinary consultation, livestock acceptance and purchase, and immediate support. It has static pages, simple form processing, and minimal backend processing to get efficiency while providing critical features. The User Management Module allows users to create accounts, register securely, and manage their profiles by updating personal information such as their name, contact details, and addresses. Once registered, users can look into the "Service & Schemes" section. This includes detailed details on various government and private cattle welfare systems and incorporates YouTube videos explaining funding options such as animal care best practices and Punyakoti recruitment schemes. You can schedule a consultation by choosing whether you need daily care or emergency care, filling out relevant details such as the animal's name, breed, and health concerns, and submitting a request.

After successful submission, the user will receive a confirmation message containing consulting details and will be repurposed using embedded technologies such as WebRTC and Jitsi for online consultations and interaction with the veterinarian. As soon as an animal is selected, the user can fill out its delivery details in the adoption or purchase form. To ensure seamless transactions, the system integrates a secure payment simulation module that supports a variety of payment methods, including credit cards, UPIs and other online

options. Users monitor order status after immediate purchase confirmation and persecution of details. Additionally, the dedicated accessories business allows users to purchase essential agricultural tools and animal accessories according to a similar structured purchasing process. Additionally, technical support services are available to fix all platform related concerns and enable users to access critical live services at the same time, without obstacles. These appropriately structured characteristics ensure that farmers and cattle owners can efficiently manage their herds, seek medical assistance, access government programs, and make the purchase of cattle on a single, integrated platform with ease.

VII. CONCLUSION

The Animal Herd Welfare Management System offers a comprehensive and user-friendly platform that transforms livestock welfare management. By integrating key features such as online veterinary consultations, adoption programs, emergency care services, and a structured livestock marketplace, the system empowers farmers, animal caregivers, and welfare organizations to take proactive measures for better herd management and animal wellbeing. Its seamless accessibility ensures that both rural and urban users can efficiently connect with veterinary professionals, receive emergency guidance, and access educational resources through integrated media like YouTube videos, making critical services more approachable and impactful.

The inclusion of field surveys adds a data-driven approach, allowing continuous improvement based on real-world challenges faced by livestock owners. This ensures that future updates align closely with user needs, making the platform more effective over time. Moving forward, the system can be enhanced by integrating AI-based health diagnostics, real-time GPS tracking for livestock, and automated reminders for vaccinations and health checkups. Additionally, features like multi-language support, mobile app integration, and block chain-based livestock tracking can further improve security, accessibility, and transparency in the sector. These advancements will not only refine animal welfare management but also contribute to a more sustainable and digitally connected livestock industry.

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IX. REFERENCES

- [1] M. K. Gautham, R. S. Kumar, “Livestock Health Monitoring and Management Using IoT and Machine Learning”, Journal of Agricultural Science, ISSN: 15 August 2023.
- [2] P. S. Ramesh, S. S. Yadav, “AI-Based Veterinary Services and Marketplace for Farmers”, International Journal of Agricultural Technology, ISSN: 2022.
- [3] A. R. Mehta, L. P. Sharma, “Cloud-Based Solutions for Herd Management in Rural Areas”, Journal of Cloud Computing and Agricultural Systems, Vol. 10, Issue 2, 2023.

- [4] D. K. Nair, T. B. Rao, “Digital Transformation in Animal Husbandry Using Web-Based Platforms”, International Conference on Smart Agriculture Technologies, 2021.
- [5] S. Gupta, R. Verma, “Mobile Application for Livestock Tracking and Welfare”, Journal of Emerging Technologies in Agriculture, ISSN: 2021.
- [6] Government of India, Ministry of Agriculture and Farmers Welfare, “National Portal of India: Kisan Suvidha.” Available at: <https://www.kisansuvidha.gov.in>.
- [7] “Bootstrap Documentation.” Available at: <https://getbootstrap.com>.
- [8] World Bank, “Digital Agriculture.” Available at: <https://www.worldbank.org/en/topic/agriculture/digital-agriculture>.

