Smart Villages: IoT Technology Based Transformation

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Abstract. In recent years, large-scale urbanisation has been on the rise with cities being the hubs for growth, but rural business continues to play an important role in any country’s overall development. A recent report reveals that almost 69 percent of India’s population resides in their villages, accounting for almost 50 percent of the nation’s GDP. This agricultural region varies from small towns with less than 500 residents to small towns. There are also similar situations in western nations. Despite their economic contribution, smaller villages seem to earn fewer in terms of infrastructural expenditure. The major problems addressed in these small towns include shortage of adequate public transit, emergency care and limited knowledge on federal subsidies for rural areas. Our vision is to expand the Smart city to Smart village by allowing use of recent technical advances and giving more attention to the problems in rural areas. The approach in this chapter is to bring IoT technology to Villages by literally showing a network of linked sensors and knowledge dissemination devices, controlling energy use and ensuring infrastructure protection. It gives a wide-ranging vision of enhancing the standard of living in villages and encourages them to meet the essential needs of domestic villagers.

1. Introduction
There are many obstacles in the realization of a rural development that incorporates and tracks all of the village infrastructure and services to their fullest potential and seeks to harness the collective intelligence. In order to benefit from the Internet of Things (IoT), systems, which involves the creation of a cloud-based network that can provide virtual process and storage as well as monitoring and visualization software, it is essential to also be developed. the integration of Information Technology (IT) and Operatioanal Technology (OT) objectives in the realm of energy management, aimed at using smart billing and data analytics Enhanced cloud-based IoT services seem to increase the system’s efficiency by allowing the management of different collection plans and routes to be created on the fly and across the day as they...
are required. Providing residents with access to environmentally friendly and affordable energy services acts as a key driver of intelligent community services and renewable resources serves as a basic tool for accomplishing those objectives[1] and also the most of rural areas is an integrated systems; basically, this means that most parts of rural America are non-decentralized and/ to an effect, most of rural America is non-centralized These clusters provide opportunity for growth, as well as having economic benefits. Rurban is based on creation of these initiatives which offers infrastructure growth-inducing opportunities in rural communities, as well as fostering their socio-economic growth. For each cluster, you should be able to foresee the following additional components: This chapter looks to deal with the transportation problems first in our healthcare system, expands on the sanitation problems, considers the problem of an expanded education system, describes methods for garbage management, and finalizes our highway issue lighting control. Fleet management, Mostly, which expands the economy by incorporating agricultural and food processing, agri-food supply and distribution, agricultural supply and distribution mainly IoT-enabled smart village can help to reduce costs by increasing performance, allowing more assets to be utilized, and generating a greater return on process resources. Utilizing sensors and communications that allow it to update and assess the data in real time and information and real-time-enabled analytics tools enables smart decisions to be implemented for sensor trackers. What is being said about the internet’s expansion is being the growth and integration of data, systems, and with this, it, opportunities for individuals, companies, and possibly even industries will be increased. Information Technology and infrastructure would be necessary for rural growth, though financial investment is necessary for the process. Thousands of networking equipment and computing devices are installed in this complex network, as well as numerous sensors are being used in it with all these pieces of the equipment on real time, there will be an increase in operational and repair costs because it is vital to achieve excellent reliability and efficiency preferably sensors and reliable data control units are placed in every single irrigation field to ensure proper information for the application of intelligent irrigation systems, broad area data network and IoT technology an application of the influence of more sophisticated tools and technologies in the community which caters to targeted people and issues with added functions that lead to dependable data transmission. By focusing on conventional farming and turning it into an IoT business opportunity, it enables the latter and creates new opportunities for both product and technology growth for the IoT industry. The chapter presents a forum and methodology for conducting intelligent agricultural ecosystem monitoring in a sensors-based system that assists with cultivation-dependent research. It is made up of three subsystems, the first of which is the GSM module, the sensor units, and the M2M Cloud Computing. More than two-thirds of India’s population resides in rural areas, rural life predominates in India[2]. It is necessary for India to focus on villages in order to provide a central communication system, but because of the communication issue, India’s development would be hindered. For this reason, villagers know nothing about Ration status, the government’s scheme and funds, and those who have raised dairy cattle or goats do not understand why they have not received funding, and those who haven’t received funding can’t tell their neighbors, Applications on and knowledge from which they are still only provided are able to come out, can expand into the system of villagers and help the problem be overcome and find solutions for it. A smartphone app that functions as a platform for farmers to introduce new farm workers and register new farm-workers The above-mentioned android framework is a centralized management system[3]. Most of the Indians live in a small towns and villages, which means that it is imperative to include their views in order to really understand India. Now that people in rural areas are discovering how helpful cell phones can be, it is important to show them that these are modern times and there are applications that will benefit them. Information technology is a very simple to communicate to adjust their views as well as the idea of a Smart Village, as a character. An intelligent community expects individuals to know their role and demonstrates how to take charge of it.
by speaking about it. The amount of capital needed in order to meet the demand for digital needs for everyone in our country is considerable, and therefore a large number of people unable to meet that demand[4]. This chapter was formed after months of research where they are realized the advantages of smart phones and how they can help people who live in rural areas. It is vital to have smart people in a community because they plan their various facets of the community through their imagination and relationships with the rest of the population. It is difficult to identify a large number of intelligent people in Indian villages, so a handful of intelligent individuals have to be found for each group. They are need to be responsible for furthering the education of future generations.

2. NEED FOR SMART VILLAGE

By this, the author means each country has contributed to the advancement of a city’s global reputation as a project to build a local knowledge-based economy in the largest metropolitan areas[5,6]. To a great extent, rural areas are in need of critical infrastructure including highways, running water, and electric power. An effort was made to build world megacities that are more related to one another, however, these cities struggled to provide much attention to the large population that was currently residing in them. Often for the benefit of small towns and rural areas, rather than the entire nations, developing and growing cities should expand rural communities. There would be better employment opportunities for youths in the country and thus discouraging rural-to-based youths from moving to the city. The most significant goal of the reform will be to remunerate farmers[7,8] and work with them to maximize potential compensation, along with mentoring and helping them to learn the ways to improve their long-term financial position, as an occupation. The class chairmanship chairmanship extends coverage such as crop insurance, soil health, and environmental practices to the base of the organization, as well as he or pesticide subsidies. In this context: Vending machine (in the village) neighborhoods: ensure economic sustainability and embrace cultural sensitivity in developing neighborhoods and also face the same problems because of direct entry to the global market has been an issue with several layers of intermediaries and a shortage of qualified workers. Still unable to change the overall economic condition of a large villages, even though people are trying to focus on enhancing their wealth and improving their access to basic necessities. Most of the rural area people don’t have a facility to access the daily basic needs like electricity and a fresh water supply, including irrigation. In order to succeed here, a number of strategies can be used: make improvements to people’s innate abilities, including, though not limited to, using technology to augment these skills Make sure to have adequate digital and informational Technology (IT) literacy a major initiatives, as well as connect to the digital market for sure. Expanding local development allows for sustainable energy resources to be made available, such as access to educational and healthcare facilities, a decent and secure living, water use, waste water avoidance, and gender equality, and a power to be attained, thus paving the way for economic growth. The IoT is an association of networking devices which is woven together through the web. It consists of mechanical gizmos, sensors, machines, cars, and so forth apart from the workplace. Portables[9,10] as well as PCs are included in this category. Some of these devices are designed so that they can transmit information to various other devices on the web-capable gadgets. Anything that has an Internet connection (gadgets) and a sensor now has a possibility of forming a network. In other words, IoT is commonly referred to as the IoT. The technique of interfacing various physical objects to the web is more and more commonly known as Middleware Interface Matching (MIMO). The concept of web of a IoT was introduced by Kevin Ashton in the year 1999, and referred to as such A society full of social network with each member knowing their own unique address has been defined as a IoT, because each thing in society is more connected to others now than ever. The items found in IoT identified as articles have the ability to gather and transport data through the IoT[11,12] capable of measuring and...
moving information that are distinct from that found in person or cars have this capability. It is by and far majority rule commonly utilized in all kinds of different business organizations. It motivates them to work together, showcasing the upgraded management to a client, and increasing efficiency while conveying the upgraded administration to the company, which also strengthens the client’s organizational vision and strategy. In general, it has evolved from microservices, distributed and MEMS (microelectromechanical systems) innovation [13]. People interacting with a machine solely by automated means (or through using computer programs) without human interferences are moving from M2M (machine-to-to-to-machine expansion to M2M expansion. The unit is already primed to expand into the cloud and ready to take on knowledge Devices are the goal of the IoT allowed. The specific use cases discussed in Fig. 1 are the standard function of these products and systems is made clear in the expression "embedded everywhere,” which has been outlined.

Figure 1. Internet of Things [7]

Various conditions have been used to get information about the point (and retrieve it) such as sensors, processors, and mechanisms to use in processing and delivering the data The components that are part of the IoT entry point or gateway are responsible for reporting and accessing data are also part of the network that exchange and collect it. This feature can be expanded to include the integration of other features [14] as well, though it may not directly follow on from the other features. Autonomous devices doedian devices only operate when they are working on their own, without help from the operator. They can pair their devices with the computers to make setting up and gathering data simple and straightforward. There are three distinct but complementary processes. These are to collect information, organize information, and summarize information, and then look at it, analyze information gathering and activities.

2.1. Collecting and Sending the Information
So far, this information has been captured and transmitted through the grid. This has largely been finished thanks to the use of sensors. With regards to moisture, one notices that various sensors have been used for example, some claim it appears to be a temperature sensor, others say it is a moisture sensor, even others that it’s a movement sensor, and so on. Once these
sensors are attached, this collects and summarizes data from a variety of different objects to give an overall impression of the decision making process and then brings about a conclusion. In addition, for instance, on the chance that ranchers can discover information about the dampness on their homestead, they will know that water should be applied to it when their premises has enough water, ranchers may make decisions about when to do it and how much water to apply. It causes the ranchers to ensure that the water is provided in an appropriate measure for their cattle as opposed to offering too little to the homesteads and buildings. Making effective use of available resources is an important part of the problem-solving process, so setting objectives and keeping them firm [15,16] helps to protect them from being wasted. The use of this device enables ranchers to do more and give back to the community, both economically and for the world’s people. The sensor makes it possible for the machines to sense the environment.

2.2. Receiving and Acting
Once you have gathered the data, it also expands on it to allow you to keep a constant eye on trends and development. To our knowledge, the computers are also very remarkable in their capabilities. We’ll find out as soon as the information is accessible, they are able to expand on it. For example, the printer obtains the data and afterwards, the data is sent to the printer to be printed. When the data is tracked and traced, the complexity of the network grows. There is no human intervention required to gather the information with sensors, as long as the sensors are used. The expand task includes getting and delivering data, collecting data, following up on the data, and compiling the results.

3. COMPONENTS OF IoT
3.1. Sensor
The sensor is the film that associates the IoT contraption to the surface condition or individual. As the name proposes, it recognizes the progressions and sends information to the cloud for handling. These sensors persistently gather information from the environment and communicate the data to the resulting layer. A model likes pressure sensors, temperature sensors, light force indicators. Gateway: Gateway Promotes stream the executives and convention layer to move information starting with one gadget then onto the next. It deciphers the system conventions for gadgets and gives encryption to the information streaming in the system [17]. It resembles a layer among cloud and gadgets that channel away from the digital assault and unlawful access to information.

3.2. Cloud
IoT frameworks send gigantic information from gadgets and this information should be overseen effectively to create significant yield. To store this tremendous measure of information, the IoT cloud is utilized. It gives apparatures to gather, procedure, and store information. Information is promptly accessible and distantly available through the web. It likewise gives a stage to examination. IoT cloud is an advanced elite system of workers to perform rapid handling of gigantic measure of information.

3.3. Analytics
Analytics is the way toward changing over crude information into some important structure. IoT analysis supports continuous research, which grabs continuous changes and irregularities [18]. The information is then transferred over into an organization that is straightforward by the end client. Clients or business can investigate the patterns appeared in reports, foresee the market, and plan ahead for effective usage of their thoughts.
3.4. User Interface
The User interface is a noticeable, substantial piece of IoT frameworks. It is that piece of the framework that connects with the end client. The data can be made accessible either in report design or as certain activities like trigger an alert, a notice, and so on. The client can likewise decide to play out certain activities. It is imperative to make an easy to understand interface that can be utilized absent a lot of exertion and specialized information. The simpler the UI is the more effective the item.

Figure 2. Components of IoT

4. CHARACTERISTICS OF IoT
After experiencing the Introduction to IoT, presently we will find out about the attributes. Attributes are the purpose for the accomplishment of IoT[10]. There are six principle qualities. Every trademark includes a lot of abilities that make IoT a conquest.

4.1. Intelligence
IoT frameworks are widely used in the market as a result of their knowledge. A blend of calculations and PC empowers the framework to advise a change in condition and take fitting activities. For instance, Systems are sufficiently astute to detect an abrupt spike in temperature and trigger an alert for fire.

4.2. Connectivity
Connectivity is the principle normal for IoT as it empowers the framework to send information and remain associated with different gadgets. It gives a framework to arrange availability and capacity cooperatively.

4.3. Expressing
IoT is tied in with connecting insightfully with the external condition and people. Communicating empowers this intelligence. Communicating permits us to show yield into this present reality and contribution from individuals and the earth.
4.4. Sensing
Sensitivity implies mindful of the progressions around us. Sensor advancements furnish us with the way to make the experience that mirrors attention to changes in the physical world and individuals in it. It helps in communicating[19]. This structures the contribution of the IoT framework and gives a superior comprehension of the unpredictable world around us.

4.5. Energy
Everything in this world is driven by vitality. IoT frameworks are made savvy enough to combine vitality from the external condition and monitor it. It is likewise made vitality effective to work for a more extended term.

4.6. Security
Wellbeing and security is the most significant element of any framework. If the framework isn’t make sure about to digital assault and illicit mediation, no one will utilize it. IoT frameworks manage individual information that is the reason it’s a commitment that all security measure ought to be taken consideration in this framework. All IoT frameworks are sufficiently secure to manage individual information.

5. APPLICATIONS OF IoT
There are various applications of the IoT including buyer-provided IoT, startup Internet Things, manufacturing Internet Things, and mechanical uses. Additionally, these applications can be mobile, electric, vitality, and other. smart-savvy homes and hot-blooded computers, warm-willed appliances can be aided by PCs and mobile phones (PC and phone regulated ventilation and climate) Clients will be able to have sensors with which to collect and analyze their own information, and which will transmit the data to additional developments, in order to make their lives simpler. These are just a few of the models that may include being sophisticated, being shrewd a vehicle that is meant to make money, a program that creates revenue, or even being wearable. Due to the fact that the systems are well-designed, the costs are kept low and temperatures can fluctuate, making life in the region more bearable[20]. an extremely efficient cultivating and extensive growth-regulating system enable growers to discover and control whether or not specific traits, such as mugginess, dampness, and yields, are developing. This encourages the talented people to aspire to be enlightened, clever meters, as well as city infrastructure such as streetlights and disinfection.

5.1. Scope
Its extent is wide and enormous in this day and age as everything is associated with the Internet. It associates the gadgets in the different frameworks to the Internet and the gadgets or articles speak to themselves can be controlled from anyplace. It helps in accomplishing more information and spots, more methods of expanding the effectiveness, and improving wellbeing and security. It causes the association to expand the presentation through IoT investigation and security to accomplish great outcomes. There are numerous associations like oil and gas, protection, producing, transportation, foundation, and other retail parts that can get advantages from it and some areas of now accomplishing the advantages from it. The IoT stage, for the most part, empowers the gadget or article to an onlooker and to recognize and comprehend the circumstance without getting the assistance of individuals or some other human intercession. In this way, the extent of the IoT is incredible later on and its previously demonstrating the outcomes also.

5.2. IoT Security
The IoT is associated with billions of gadgets with web and an immense number of information focuses are engaged with gathering, moving, and sending the data. Because of its long structure
and extended surface, the security and protection of IoT are the immense worries for the various associations. As these gadgets are firmly associated, the assailant can misuse one weakness to control the entire information in one go and the gadgets that are not refreshed normally are the primary explanations behind these sorts of assaults. Other individual data like age, address, and Mastercard subtleties, and so on are likewise being given by the client when the gadgets are associated with one another by means of different methods. These gadgets are acquired to sell the clients very own data. It likewise represents the hazard to foundation, power, transportation and budgetary help, and so on.

5.3. Audience for Learning
The right audience for learning these is engineers, venture chiefs, as well as others who value creativity, entrepreneurs, would be individuals who are into business specialists, as well as business investigators who’re eager to discover IoT. The challenge for entrepreneurs is to gain awareness of new ideas that are appearing on the market, how these ideas interconnect, and use this knowledge to bring their own invention to the world and gain an added value. It lessens the amount of manual work and time it takes. Although this requires additional resources to implement, there are fewer variables that can easily be accounted for in the costs of expansion. To be sure, there are many steps to be taken. The IoT include proficiency with the ability to acquire internet friends and acquaintances through an easy-to-use medium, whether it be online or not [21]. The process of developing recordings into objects is highly effective, but there is still some use that can be made of the recorded materials. Workers are drawn to joining professional associations because they expect things to change and to be developed through networking with their peers and also because these relationships help their company, according to research. All inside work and plans have been approved and will be carried out by the organizations in support of their members and customers to locate the criticality of the IoT.

6. THE IDEA OF SMART VILLAGE
People now live in big cities in greater than in proportion to their population percentage of the population. This may be the reason that both researchers and governments focus on building sustainable cities, since the idea is that they have their resources with them, and are efficient enough to remain so Using sound and prudent fiscal planning, these cities may apply their resources in a useful and well-directed manner. The same concept can be applied to the rural towns as well. The economy of the majority of which is dependent on agriculture is rural is like in India, in which the population has a strong growth potential. Compared to the people in the big cities, life in small towns is not as easy, and it’s generally harder in villages as well [13,14]. When you work to help the growth of the cities and villages, you have to also strive to improve the quality of life for the people who reside in them. With a certain amount of effort, specific concepts from smart city can be put into small towns. Even, as an example, the use of cameras and sensors in streets, such as traffic surveillance and healthcare among others. Various aspects of the villages are considered in the subsequent sections; next will consider how well villages are doing with the use of IoT and the quality of life, leading to a detailed look at Smart Village practices. To create a Smart village, one must first determine all the artifacts that interact with each other and next identify the possibilities for integrating them. Then sensors, cameras, switches, and other devices will be placed that are much larger and serve other purposes, such as fixed alarm buttons will be added [15]. This array of sensors and related equipment will be connected to the internet, which will generate a massive amount of data that can then be stored and processed in the cloud servers. Even after taking care of all the logistical issues, this data can be mined for finest details with Big Data analytics like Hado. At the end of the day, the goal is to achieve
smart homes, climate control, security, and class management are also sought after.

6.1. Smart Buildings
Smart homes and buildings use sensors and cameras to track and collect information about all aspects of life within them. Constant data will be generated, which means you will have constant feedback about what is happening with your project. For example, sensors can be found in a house, whooshing the sprinklers to fight fire, if they sense smoke is nearby, and starting to extinguish. Also, the sensors track energy use and disable and light switches allow home and building automation to be turned off when there is no longer a need for them. Access to a greater energy capacity is the critical need in rural areas where you can’t have power at all times. According to the existing security measures, the building’s security can be closely monitored with cameras and corrective measures can be implemented to counter any irregularities. Water levels and pressure can be assessed in the water tanks and used to refill them when there is a problem.

6.2. Smart Weather and Irrigation
Making sure that accurate weather information is accessible to the villagers is an asset. The majority of rural populations subsist on a steady-state subsistence economy, in which agriculture is their main source of income. In theory, the use of environmental sensors helps farmers in many ways, but it does not fully and completely describe the weather since sensors can only detect conditions and not predict it. A large number of farming operations, including planting, watering, and harvesting all rely on the weather. With the ability to use sensors in the fields and to measure the flow of water, it is possible to implement effective irrigation methods that allow full use of available resources. If it’s going to rain the next day, it is highly recommended that the crops be watered on an extra day to provide them with sufficient water. Every bit of information on farming techniques, from environmental conditions to economic forecasts, can be supplied to farmers via cell phones. Proximately gaugedometers in the water-related projects and for example, water levels in the dams and reservoirs can be measured to identify how much the water projects may need to expand.

6.3. Smart Farming
As the primary production is a fundamental necessity for any community, farmers must be able to reap the greatest value from the systems of IoT and Smart village. In order to have complete food traceability, the produce needs to go from the field to the table. Sensors and other data can be used to keep track of anything from the whole activity sequence of activities. Many who are interested in the process are the growers, purveyors, business people, packers, warehousers, and transport firms, as well as well as the dealers, transporters, in addition to retailers. can help the farmers make informed decisions on what type of crops to plant, the sensors can monitor the germination progress of each week in the fields, and guide farmers using sensors to decide what type of application methods, including row-specific or nutrient-drip-dependent, should be used, can advise on the need for water application, and perform yield predictions based on the soil or climate With remote sensor and satellite imagery, it is possible to predict which kinds of diseases and pesticides the farmers are most likely to have in their fields. Their farmers’ cell phones is state of the art in order to keep them up on what’s new in agriculture. If the device identifies an emergency, an emergency, a safe procedure may be automatically followed and take appropriate action[16]. Caleb understands this because his father and grandfather farmed wheat for many decades before the time of mechanization, but also because he was the victim of an earlier example which has been previously discussed. For example, a small sparks can set entire farms on fire, which makes bigger farmers very angry. There are environmental sensors that can sense smoke at the start of a fire and automatically begin to flow water to extinguishing
it before it can get out of control. This also pertains to sensors, which can detect ripening of vegetables and fruits and the moment they are ready to ship, helping the produce companies prevent delays before they occur. Once you’ve chosen the produce to be sold, the appropriate locations in the market, suitable plans should be developed to facilitate sales.

6.4. Smart Dairy
Dairy has enabled secondary activity, and business to increase. Having the use of sensors and cameras in the barn or herdery will help farmers in better supervising their work. Any possible variation is shown as a warning message and any identified changes are reflected by procedures are brought into play. Smart devices may be used to regulate the animals’ temperature in the ideal range. As in the above statement, it is possible to track the food, water, and health necessities of cattle in the same way. You run the risk of someone or something getting sick if you graze livestock in the open fields without an adult. Sensors in the fields will enable farmers to cut their staff numbers by eliminating the need for human oversight, which means they can operate more efficiently.

6.5. Smart Healthcare
Additional healthcare and medical services are required in the rural areas in order to raise the quality of life. The community pharmacies and healthcare facilities in the dispensaries need to be connected to each other in order to supply their requirements. in order to allow the sensors to record various medical devices to communicate with the patient, movement, tissue wounds’ rate of circulation, and body temperature, among other things, are typically installed in the patient’s beds. Multiple machines including X-rays, CT scans, ultrasound, and other reporting devices send data to the doctor instantly expand on these reports to become more detailed. such basic services will contribute to the overall health of the health of the villages.

6.6. Smart Surveillance System
As the population densities are lower in rural villages are more remote, the police stations are far away, and less crime is being reported, security is likely to be less effective Because of these reasons, small communities demand better surveillance is needed in villages. Additionally, sensors and cameras are going to help monitor the area surveillance and relay data, which will be helpful in identifying the entire village locations where emergency situations may arise. During a burglary or robbery, you can use the alarm buttons in case of which send out a signal to the police department nearest to you to warn the others of the situation. The cameras will assist in catching the thief after they record and reveal his/demonstrate where he stole the item. to ensure that events like this don’t occur in the future, data can be processed to include additional variables.

6.7. Smart Education
A more general way of expressing the importance of education as a means to implement all of development It is easier to introduce new innovations as more people are aware of them. This phenomenon has an inverse relationship with population density: In dense cities, built-up areas, digital divide seems to exist more than in villages and small towns. Smart village are built around its components, and this construction involves a serious commitment on the part of the people living occupants. Leveraging members may become stakeholders, which means that they may take part in any endeavor in the community, enrich its economy, and also lead the villagers’ well-being. Dealing with children and adolescents becomes less of a struggle when we approach education in an exciting and interactive way. Video games have the benefit of engaging children because they’re more likely to learn in an interactive way than a lecture style, but lectures are
still great for helping them to absorb information. A IoT is made up of various technologies like the Internet, smartphones, as well as intelligent devices, which assists in the process of education. The use of LCD screens and video games will promote children’s learning and appreciation for things, as well as encourage interaction with others who are adults. The homes and businesses in the Smart village can be used to teach those in the villages about a variety of skills, such as about how to use the services and systems, tools and how to solve problems. Classrooms in the local villages can be provided with Internet access to new and the computers and school can then serve as a more interesting and engaging educational experience.

7. Conclusion
Back in the day, people used to regard the IoT and Smart city as two very speculative ideas, the latter of which was envisioned as the possible future. Today’s rapid growth in the use of technology, however, has unfortunately, meant that it is becoming a reality. This chapter is written to provide solutions for the small towns and villages thus reflecting the various requirements found in these other types of communities. Interests in various aspects of this process have been investigated, as well as several suggestions have been given. Various advancements in fields of technology have made it necessary for various services to be provided with a sophisticated delivery. To be competitive, demand response, new equipment should be installed in modern locations that represent current priorities in rural areas. Making the irrigation easy and accurate while minimizing water consumption is part consumption will be the focus of the effort in expanding the use of the automated system. Waste-related technology can also presents the population and changing lifestyle needs, where an Expanded phrase: When the population and use increases, cloud-based resource management and hygiene technologies have the capability to be put to use in waste disposal. In addition to this project’s efforts to alleviate poverty, which are also focused on environmental issues, it has been recognized for boosting the rural economy by using different techniques. To meet the basic design requirements, consider all possible energy resources, instruments, tools, and the entire financial economics of the system must be taken into consideration.

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