School of Information Technology & Engineering

M Tech Software Engineering

Requirements Engineering and Management (SWE2003)

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J component-smart city development

Submitted by

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TABLE OF CONTENTS:

Problem Statement:

In India we have an indirect communication between the government and public. For getting a problem solved within our nearby areas we have to visit the government offices which would require a whole day or else bribe the officers to get the problem solved which can be actually solved in a very short period of time. A common man faces many problems related to governance in his daily life. The main purpose of our Smart City project is to help the public facing such problems and knowing the region where the problem has occurred and getting their problems solved online without going to the officer regularly until the problem is solved. In accordance, this study initiates an integrated and networked system, with the focus on its ability to solve. Smart city is mainly concerned with smart governance, smart energy, smart environment, smart people, smart transportation, smart IT and communications, smart buildings and smart living at large. Smart is not just about technology-enabled, but also about power, water, transportation, solid waste management and sanitation. A smart city's core infrastructure is information technology, where a network of sensors, cameras, wireless devices, data centers forms the key infrastructure providing all important services. This will minimize time as well as money to go to an office for complaint registration. Three related concepts are encompassed by the general scope of People's Corner. The first applicable to the replacement of personal visit to the office and registering complaints on paper, the second relates to a complementary electronic strategy for the handling of a customer's complaint and the third surrounds the process of taking actions by the government bodies against the complaints registered by the citizens. The user can click the picture of the venue of complaint and upload the same. Also the address of complaint location will be tracked automatically using GPS and Google maps, thus reducing user's overhead of typing the address.

Even if we could manufacture batteries at that scale, the resulting pollution and energy consumption would offset many of the benefits. In India, given its demographics and diversity, unique challenges and opportunities exist for developing "smarter" cities which attract increased investment, employ innovative technology, create environmentally sustainable solutions, grow operational efficiencies and amend the lives of urban citizens.

There are two parts of the development of a smart city: infrastructure (communication, electricity, roads, sanitation, water assets among others) and real estate. To develop smart cities in India, there is a need to address challenges relating to political alliance, financing and stakeholder management.

The Five Steps in Problem analysis:

1. Gain agreement on the problem definition.
2. Understand the root causes-the problem behind the problem.
3. Identify the stakeholders and users.
4. Define the solution system boundary.
5. Identify the constraints to be imposed on the solution.

Gain agreement on the problem definition:

1.smart lighting

Elements	Description
The problem of	Problem with traditional lighting is that "it consumes more power and cost increases"
Affects	People who are in poverty will affected mainly and others are also affected**.**
And results of	Government has to produce more power for domestic appliances**.** Public struggle very much.
Benefits of solution	With the proposed solution of smart lighting. 1) we can save energy. 2) cloud network is introduced 3) produce power using renewable energy 4) security gets better.

Smart vehicle parking

Elements	Description
The problem of	People spending lot of time to find secure car parking space near to them.
Affects	More “fuel consumed” and it is a “Time” wasting thing
And results of	People park their cars in no parking areas. So that so many problems encounters
Benefits of solution	With the proposed solution of smart vehicle parking, 1) finding place very easily using MOBILE NETWORK and GPS 2) vehicle security getting better with the help of cloud networking 3) it saves two important things 1)TIME 2)FUEL

2. Smart Bin

Elements	Description
The problem of	The improper disposal of municipal waste has a serious & dangerous impact on a wide range of areas
Affects	Living beings near to this garbage bins have severe health hazards
And results of	Water contamination is the main thing Pollution increases Economic growth degradation
Benefits of solution	With the proposed solution of SMARTBIN, 1) we can easily collect the dump by using cloud networking 2) recycling production also increases 3) saving of time & money

Step-2: Understanding the root causes: Using fishbone diagram understanding the root causes

FISHBONE DIAGRAM FOR LIGHTING:

we can not use sunlight as power resource in normal lights

we cannot operate lights digitally because cloud networking is not possible

high energy consumption and budget increases

Emergency alarms and security alarms Cannot perform in normal lights

normal lights effects people eyes and their mood

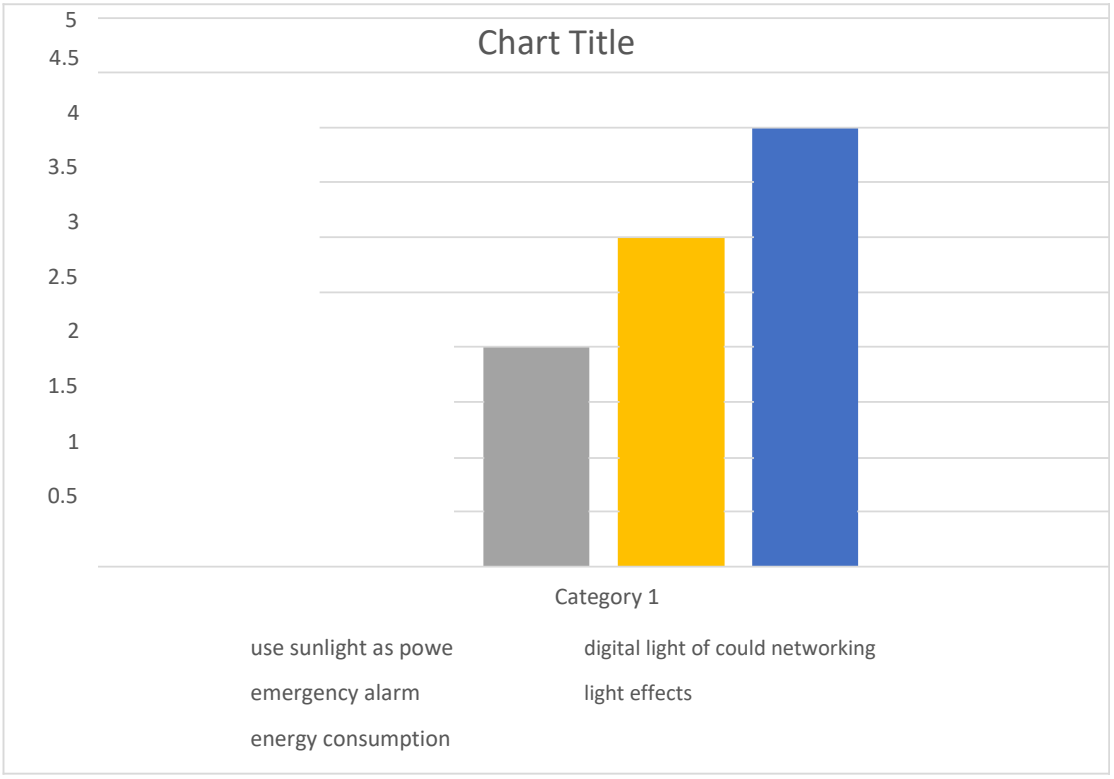
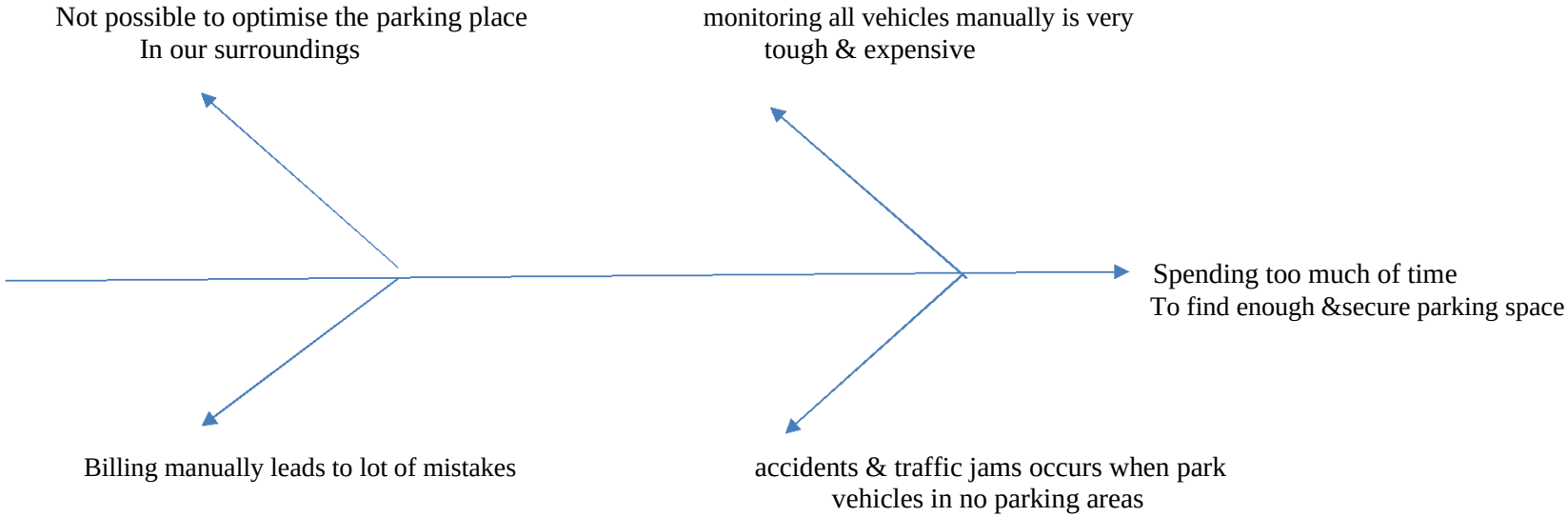


Chart Title
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
Category 1
use sunlight as powe
emergency alarm
energy consumption
digital light of could networking
light effects

FISHBONE DIAGRAM FOR VEHICLE PARKING:



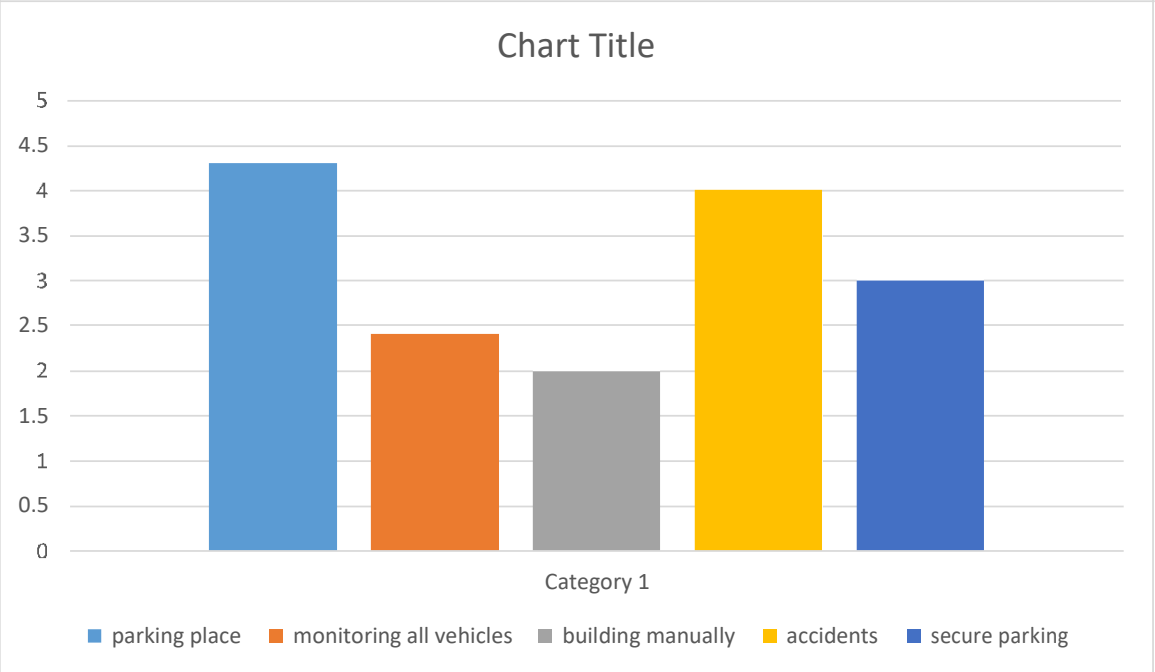
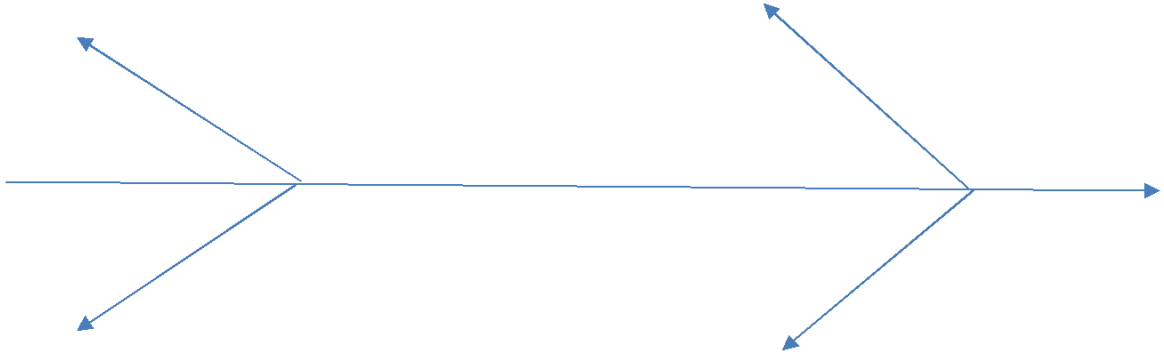


Chart Title
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
Category 1
parking place
monitoring all vehicles
building manually
accidents
secure parking

SMART BIN

organics compost management is a tough thing in normal garbage system

collecting the garbage manually take too much of time and expensive thing



The improper disposal of municipal waste has a serious & dangerous impact on a wide range of areas.

In normal garbage collection system the garbage collector do not know the details about the bin

overflow of waste causes health hazards to surrounding living organisms

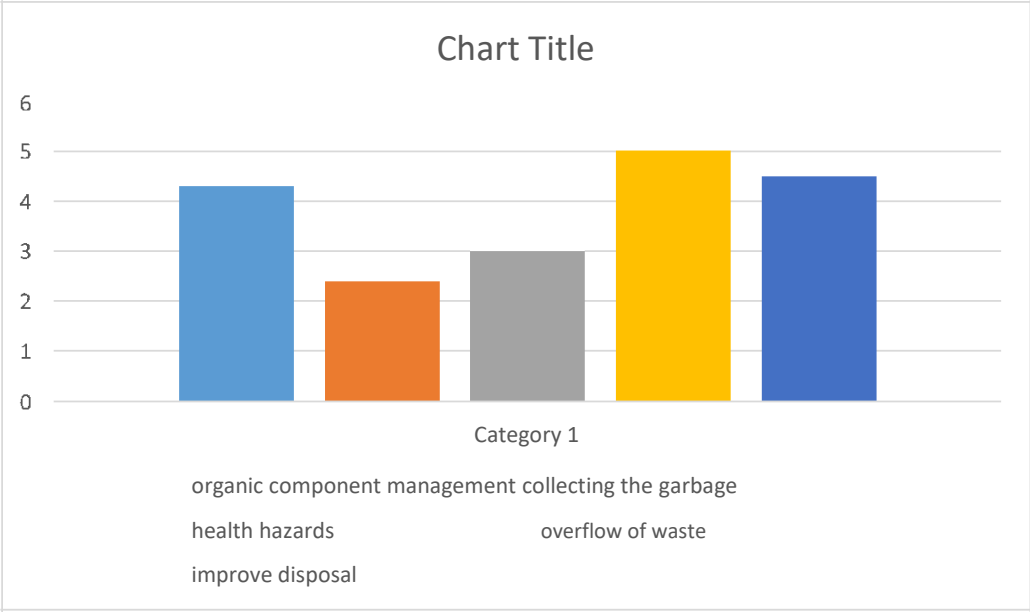


Chart Title
6
5
4
3
2
1
0
Category 1
organic component management collecting the garbage
health hazards
overflow of waste
improve disposal

STEP 3: identifying the stack holders and users:

-Understanding the needs of the users and other stakeholders is a key factor in developing an effective solution.

-A stakeholder is anyone who could be materially affected by the implementation of a new system or application

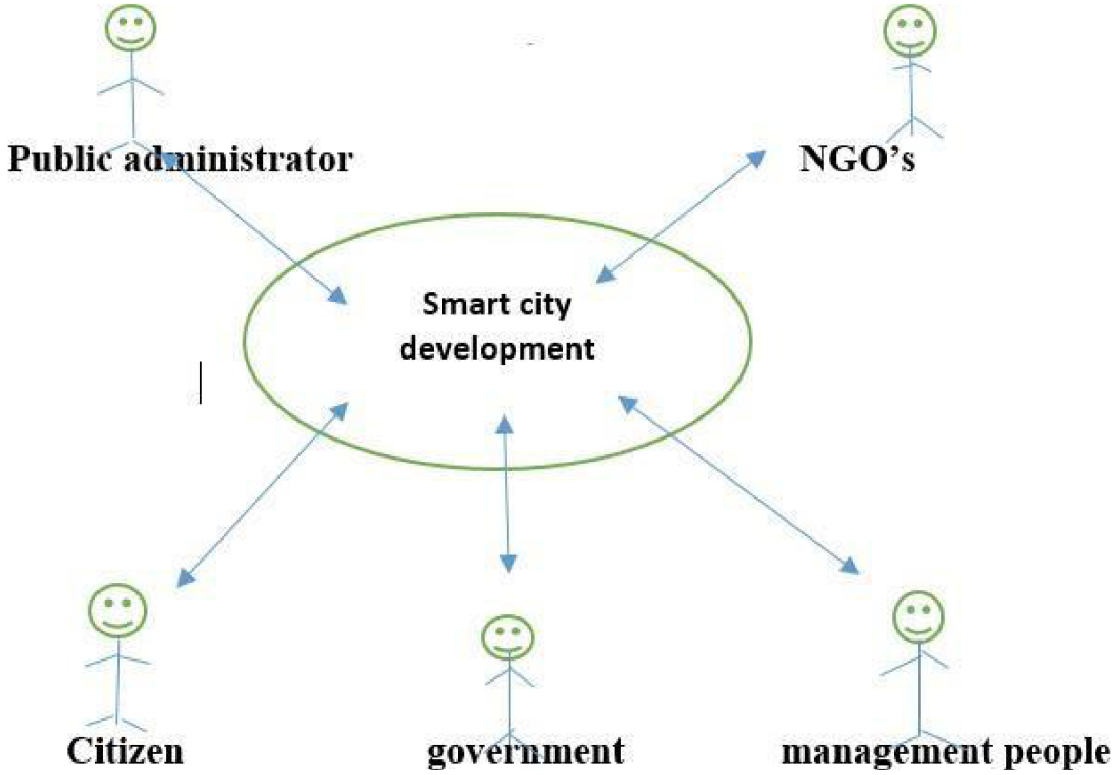
Decision makers	Potential users	Other interested parties
i) Municipal government	Political institutions	companies
ii) Local economic agent	Networking institutions	clusters
iii) Local social agent	Social organisations	Social things

USERS:

i. Citizens
ii. Government
iii. employee

Step-4: Define the solution system boundary.

System boundary defines the border between the solution and the real world that surrounds the solution.



Step- 5: Identify the constraints to be imposed on the solution.

-A constraint is a restriction on the degree of freedom we have in providing a solution.

- A variety of sources of constraints must be considered

Source	Constraint
Technical	The project is to be developed in the platform and technology specified or restricted by the organization.
Economical	The project is said to be developed in the budget as specified or allotted by the organization
Political	The project is said to be developed as per the norms mentioned by the organization and should not effect

	The internal and external political issues of the organization
Schedule	Project is said to be developed in the time allotted by the organization.
Resources	Project has to be developed in the existing software and hardware resources and also in available employees

Stakeholders involved in the system:

a) INTERNAL STACKHOLDRES:

i) Municipal government

ii) Local economic agent

iv) Local social

agent Iv) Local RD

b) EXTERNAL STAKEHOLDERS"

i) Political institutions

ii) Networking institutions

iii) Social organisations

iv) Innovation and research institutions

v) Financial institutions

vi) Involved companies and clusters

problems of the existing system:

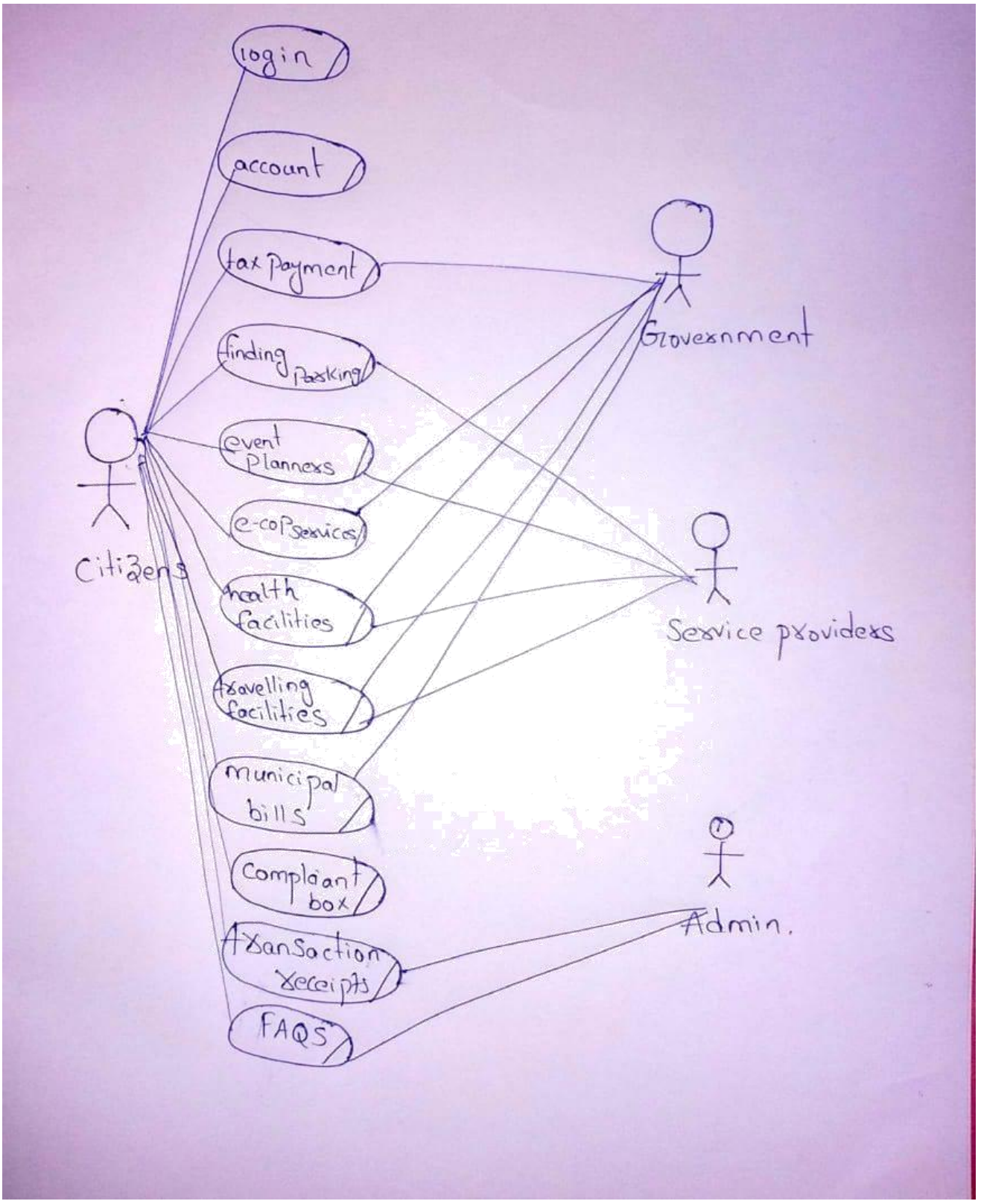
1. Finding enough parking space
2. Security & surveillance all over the city
3. Getting funds for low interest rate
4. Efficient and perfect infrastructure
5. Literacy rate is less
6. E -cop services to file fir indstantly
7. Less usage of renewable energy due to lack of knowledge
8. Lake of skilled workers and employees
9. Technical understanding
10. Online appointments to consult doctors

Features of the proposed system:

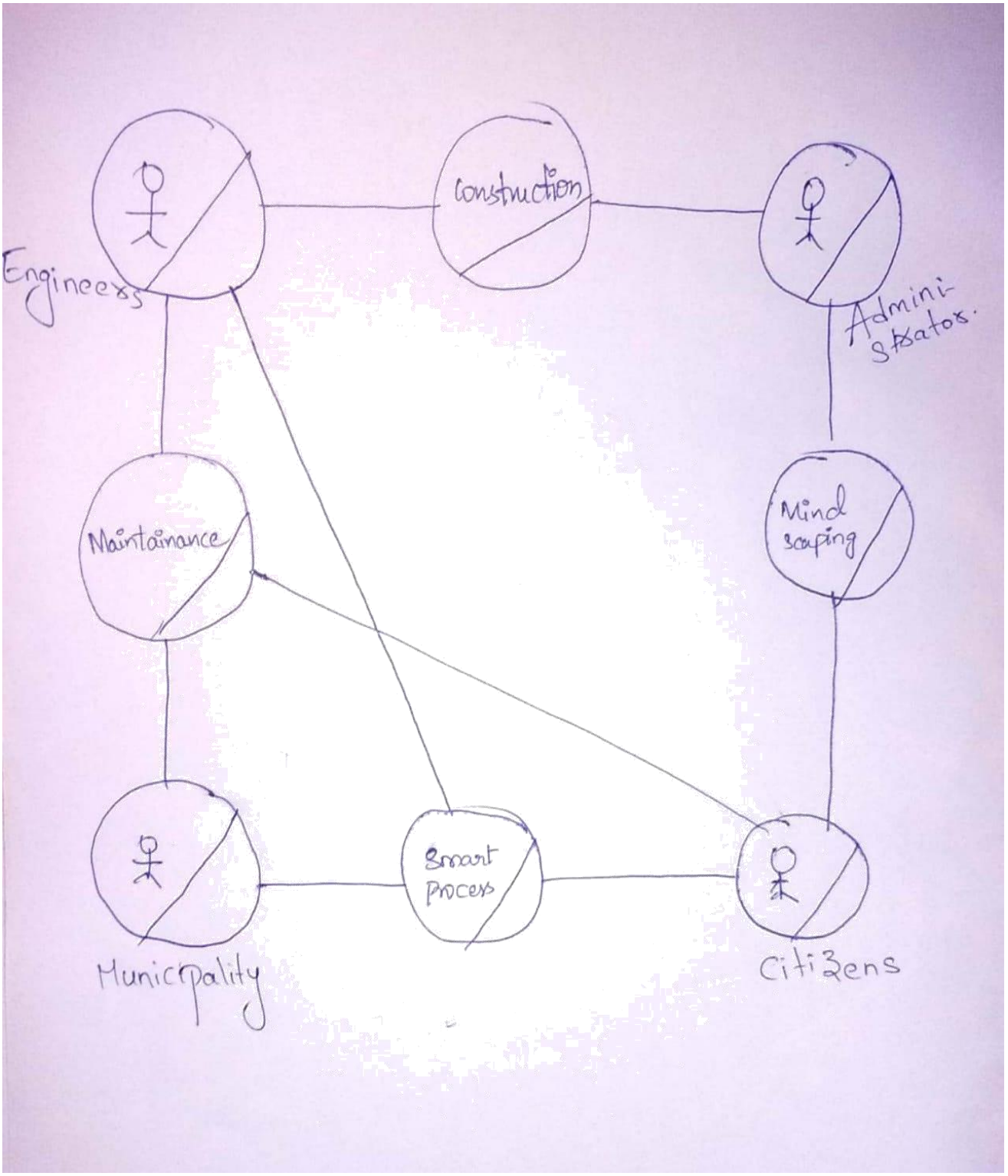
To provide for the aspirations and needs of the citizens, urban planners ideally aim at developing the entire urban eco-system, which is represented by the four pillars of comprehensive development- institutional, physical, social and economical infrastructure. Some typical features are:

1. Promoting mixed land use in area based development-planning for 'unplanned areas' containing a range of compatible activities and land uses close to one another in order to make land use more efficient. The states will enable some flexibility in land use and building bye-laws to adapt to change.
2. Housing and inclusiveness- expand housing opportunities for all.
3. Creating walkable localities – reduce congestion, air pollution and resource depletion, boost local economy, promote interactions ad ensue security. The road network is created or refurbished not only for vehicles and public transport, but also for pedestrians and cyclists, and necessary services are offered within walking or cycling distances.
4. Preserving and developing open spaces- parks, playgrounds, and recreational spaces in order to enhance the quality of life of citizens, reduce the urban heat effects in areas and generally promote eco-balance.
5. Promoting a variety of transport options- Transit Oriented Development (TOD) , public transport and last mile para-transport connectivity.
6. Making governance citizen- friendly and cost effective- increasingly rely ononline services to bring about accountability and transparency, especially using mobiles to reduce cost of services and providing services without having to go to municipal offices. Forming e-groups to listen to people and obtain feedback and use online monitoring and activities with aid of cyber tour of worksites.
7. giving an identity to the city- based on main economic activity, such as local cuisine, health, education, arts and craft, culture etc.,
8. Applying smart solutions to infrastructure and services in area based development in order to make them better. for example, making areas less vulnerable to disasters, using fever resources, and providing cheaper services.

BUSINESS USACASE MODEL:



Business oblect model



Feature Attribute Matrix:

1. Active Safety System

1.Environmental Detection:

2. Information Beacons

3. Smart Bin collection

4. Smart Health Care system

5. Smart Journey Planning:

6. Traffic Management and parking Solution

7. Smart Social Housing

8. Smart Street lighting

9.Transport Sharing

10.Smart Education

11. Creating Walk able Localities

FEATURES	ATTRIBUTES						
	STATUS	PRIORITY	EFFORT	RISK	TARGET RELEASE	ASSIGN	REASON
ACTIVE SAFETY SYSTEM	PROPOSED	USEFUL	HIGH	LOW	VERSION 1.0	SOFTWARE DEVELOPER	
ENVIRONMENTAL DETECTION	PROPOSED	USEFUL	LOW	LOW	VERSION 1.0	SOFTWARE DEVELOPER	for observing pollution or whether condition
INFORMATION BEACONS	PROPOSED	IMPORTANT	LOW	LOW	VERSION 1.0	SOFTWARE DEVELOPER	it will transform the way we access information in mart cities
SMART BIN COLLECTION	PROPOSED	CRITICAL	HIGH	MEDIUM	VERSION 1.0	SOFTWARE DEVELOPER	it helps the cities plan individual truck rolls or collection routes
SMART TREATMENT & MODERN EQUIPEMENTS IN HOSPITALS	PROPOSED	CRITICAL	HIGH	MEDIUM	VERSION 1.0	SOFTWARE DEVELOPER	it solve the health issues effectively using latest technology
SMART JOURNEY PLANNING	PROPOSED	USEFUL	HIGH	LOW	VERSION 1.0	SOFTWARE DEVELOPER	it suggest best and time saving routes to travel from one point to another
SMART SOCIAL HOUSING	PROPOSED	CRITICAL	HIGH	LOW	VERSION 1.0	SOFTWARE DEVELOPER	it introduces low cost monitoring to social housing. it reduce the cost of landlords

TRAFFIC MANAGEMENT AND PARKING SOLUTION	PROPOSED	IMPORTANT	LOW	LOW	VERSION 1.0	SOFTWARE DEVELOPER	the iot devices can help in avoiding traffic jams, suggest feasible time to travel and give parking information about crowded places
SMART STREET LIGHTING	PROPOSED	CRITICAL	HIGH	LOW	VERSION 1.0	SOFTWARE DEVELOPER	street light systems are automatically on and off according to the situation. it reduces energy consumption
TRANSPORT SHARING	PROPOSED	USEFUL	HIGH	LOW	VERSION 1.0	SOFTWARE DEVELOPER	It reduce the accident detection and it provide limited parking facilities
SMART EDUCATION	PROPOSED	CRITICAL	HIGH	LOW	VERSION 1.0	SOFTWARE DEVELOPER	Flexible learning in an interactive learning environment
CREATING WALK ABLE LOCALITIES	PROPOSED	USEFUL	LOW	LOW	VERSION 1.0	SOFTWARE DEVELOPER	The road network is created not only for vehicles but also for pedistrains.

STAKE HOLDERS REQUEST DOCUMENT

STAKE HOLDER: CITIZEN

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1. INTRODUCTION:

a smart city is an settlement with optimized, smartly managed and properly connected resources.

SMART CITY IS CLEAN POLLUTION FREE. A smart city combine technology, luxury and power consumption to make life smoother and easier.smart city install sensor based nodes at every possible corner of the city so as to get the update from everywhere through lot. Smartly connected road,smart power generating house , big data processor and IOT are main building block for a smart city. A smart city is a developed in three major sector to be called a smart city and those are transport, energy and information and communication technology (ICT).

1.1 PURPOSE:

IOT give the ability to connect resources to different places and accesst hem from one location. A sensor node installed at a particular location give data to different dept of the city and help to understand the exact problem thus connecting different dept, of the city , the interconnected dept. provide better solution and it reduce the time to tackle and solve the problem

1.2 SCOPE:

Scope refers to the detailed set of deliverables or features of a project. deliverables are These derived from a project's **requirements**.

Smart City could include Smart Governance, Smart utilities, Smart Street lighting, Smart parking etc.

the practice of researching and discovering the requirements of a system from users, customers, and other stakeholders.

And deliver the desired product to the users

When it's come to our document there is so many of thing need to be delivered.

People spending lot of time to find secure car parking space near to them. Smart vehicle parking help people to do that.

The improper disposal of municipal waste has a serious & dangerous impact on a wide range of areas. Using Smartbin we can reduce the pollution and save time and fuel.

Problem with traditional lighting is that "it consumes more power and cost increases". With the help of smart lighting we can minimize the power consumption and we can operate then with our smart phone.
So like this there are so many similar thing will change with IOT things

1.3 DEFINITIONS, ACRONYMS AND ABBREVIATIONS

CITIZENS: people who belong to the smart city

PROVIDERS: who provides facilities

SERVERS: it is used to use the website

CLOUD NETWORK: to operate gadgets or electronic things manually

RENEWABLE ENERGY: to reduce the pollution and using sunlight effectively

PERFORMANCE: it is about how the proposed system is working

1.4 REFERENCES:

https://www.slideshare.net/ruud17/typology-of-smart-city-stakeholders

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https://info.burnsmcd.com/smart-cities/data-drives-ongoing-water-supply#view-article

1.5 OVERVIEW

A **smart city** is a designation given to a **city** that incorporates information and communication technologies (ICT) to enhance the quality and performance of urban services such as energy, transportation and utilities in order to reduce resource consumption, wastage and overall costs.

the main features adequate water supply, assured electricity supply, sanitation, including solid waste management, efficient urban mobility and public transport, affordable housing, especially for the poor, robust IT connectivity and digitalization, good governance, especially e- Governance and citizen participation,

From a technological perspective, the smart city ecosystem is a complex one comprising many te chnology areas. Major players operate in several areas, provding solutions that complement (and sometimes overlap) other players. Those companies that are able, are working toward a converge nce point where they can provide end-to-end solutions for city technology needs.

Cloud computing has had a significant influence on the development of smart cities, affecting the way cities manage and deliver services and enabling a broader set of players to enter the smart ci ty market.

Citizen engagement represents a complementary aspect of smart cities and although not strictly a technical consideration, relies on the data gathering and management discussed in the open data and big data sections.

Although this trend paper focuses on technological trends, as outlined in the introduction, smart c ities are complex ecosystems that cut across technological, social, organizational, and business do mains. Understanding the rollout of technologies and their relative importance in the ecosystem requires understanding the business drivers that affect their deployment and uptake, and an overview of the smart city marketplace

This report has highlighted a number of technologies whose evolution and deployment is contributing to the growth of smart cities.

Some high level observations include the following:

1)smart vehicle parking based on cloud networking

2)smart dustbin for Eco friendly environment

3)smart lights which saves energy and improve security

2. ESTABLISH STAKEHOLDER OR THE USER PROFILE:

- Name: XYZ
- Company / Industry: smart city
- Job Title: citizenship
- **What are your key responsibilities?**

  - Drives much of the smart city requirements.

  -Important part in the economic, social and environmental long-term development.
- **What deliverables do you produce?**

  -Consumes services

  -Gives feedback

  -Defines the desired goals of the city
- **For whom?**

  -citizens
- **How is success measured?**

  -By giving the correct feedback and consuming the goods properly.
- **Which problems interfere with your success?**

  -Temporary inhabitants of the city

  -Inactive participants
- **Which, if any, trends make your job easier or harder?**

  -Adopting the name citizenship makes the job easier.

3. ASSESSING THE PROBLEM

- **For which <application type> problems do you lack good solutions?**

  -Improper government performance

  -Bad decision making by the citizen

  -Irresponsible citizens
- **What are they?**
  - Nothing else

Ask for each problem:

Problem:Improper government performance.

- **Why does this problem exist?**

  -Due to irresponsibility in people who work in the higher positions.

- **How do you solve it now?**

  -By checking people qualification and personality.

- **How would you like to solve it?**

  -By making a committee to select the people in the government.

Problem:Bad decision making:

- **Why does this problem exist?**

  -Due to less knowledge and experiences.

- **How do you solve it now?**

  -Through counselling

- **How would you like to solve it?**

  -Putting him in jail

Problem:Irresponsible citizen

- **Why does this problem exist?**
  - Due to their educational qualification are awareness
- **How do you solve it now?**
  - Making them aware of the system and things in the smart city
- **How would you like to solve it?**
  - By counselling

4. UNDERSTANDING THE USER ENVIRONMENT

- **Who are the users?**

  -citizens

  -government

  -municipal authorities

- **Are users experienced with this type of application?**
  - yes
- **Which platforms are in use?**

- IOT devices
- Smart devices that manages all the needs of the citizen

What are your plans for future platforms?

- An online smart website that deals with complete functionalities of the needs
- A portal that updates all the details of users and keeps safe
- A portal that displays a complete and relevant data
- An online working system that helps in frequent changes and updates

Which additional applications do you use that we need to interface with?

- Making all the activities of the users to be connected in one single portal

What are your expectations for usability of the product?

- The duration of the product expire should be prolonged
- It should work at any time

What are your expectations for training time?

- As less as possible (for about 1 day)

What kinds of hard copy and on-line documentation do you need?

-Aadhar card

-Educational qualification proof

-Citizenship proof

5. RECAP FOR UNDERSTANDING

You have told me (list stakeholder described problems in your own words):

-Improper government performance

-Irresponsible citizens

-Bad decision making of any higher authorities like municipal offices

Does this represent the problems you are having with your existing solution?

- Yes

What, if any, other problems you are experiencing?

- Security of the citizens

6. ANALYST'S INPUTS ON STAKEHOLDER'S PROBLEM (VALIDATE OR INVALIDATE ASSUMPTIONS)

- **Which, if any, problems are associated with:**
  - The system or authorities should intimate the citizen if there is any improper actions done by the citizen automatically
  - The system should show the deadlines of the assignments as popup's when the deadline is with-in 2 days
- **Is this a real problem?**

  -yes
- **What are the reasons for this problem?**

  -poor management system

  -technical problems

  -lack of interaction with user

  -outdated system
- **How do you currently solve the problem?**

  -By asking the people who all monitoring the functionalities of the cit

  -By meeting the concerned authorities or staff
- **How would you like to solve the problem?**

  - By creating feedback loops

  - By making everything smart and reaching the needs of the cities.
- **How would you rank solving these problems in comparison to others you've mentioned?**

  - Payment issues

  - Maintaining issues

  -Management problem

7. ASSESSING YOUR SOLUTION

- **What if you could...**
  - Create feedback page in the portal
  - Introduce a parking apps
  - Making wi-fi available whole city

- Maintain the payment gateway properly

How would you rank the importance of these?

- Maintain the payment gateway properly
- Create feedback page in the portal
- Introduce a parking apps
- Making wi-fi available whole city

8. ASSESSING THE OPPORTUNITY

Who needs this application in your organization?

-Citizens

-Government

-Municipal authorities

How many of these types of users would use the application?

-Citizens

-Government

-Telecommunication providers

-Industries

How would you value a successful solution?

-By creating a online portal and making all the needs to meets the requirements of the stakeholder needs

9. ASSESSING RELIABILITY, PERFORMANCE AND SUPPORT NEEDS

What are your expectations for reliability?

-Making all the faculties access to everyone

-Checking whether all the things are working properly in the city

What are your expectations for performance?

- Accessing wi-fi to the whole city
- Solving of Server errors (SITE CAN'T BE REACHED)

- Increasing server usability size

- **Will you support the product, or will others support it?**
  - I will support the problem
- **Do you have special needs for support? What about maintenance and service access?**
  - No
- **What are the security requirements?**
  - Not showing the passwords
  - Avoiding leakage of important data stored in the databases such as user bank details
  - Generating one-time captcha to avoid automatic system-based login
  - Keeping all the data secured
- **What is the installation and configuration requirements?**
  - Proper code development
  - Proper distributing of software
  - Proper maintenance of the software
  - Proper checking for bugs, errors in the software and solving them well in advance
- **What are the special licensing requirements?**
  - Taking permission from the government
  - Budget plan
  - Should take (buy) secured database
  - Should take the website licences
- **How will the software will be distributed?**
  - The website address has to be shared to all the users through mails or notice boards
- **What is the labelling and packaging requirements?**
  - Label should have the name of the university

Other Requirements

- **Which, if any regulatory or environmental requirements or standards must be supported?**
  - All things regarding smart city should be available is single portal
  - Citizen should login in the website through login id and password
  - The website should be working in all the places
  - The database should be accessible
- **Can you think of any other requirements we should know about?**

- No

10. WRAP-UP

- **Are there any other questions I should be asking you?**
  - No
- **If I need to ask follow up questions, may I give you a call?**
  - Yes
- **Would you be willing to participate in a requirement review?**
  - Yes

11. Analyst's Summary

1. Inaccuracies on payments
2. Inaccuracies in data (attendance, marks)
3. Inaccuracies inparking , electricity and water management
4. High prices improper roads

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From a technological perspective, the smart city ecosystem is a complex one comprising many te chnology areas. Major players operate in several areas, provding solutions that complement (and sometimes overlap) other players. Those companies that are able, are working toward a converge nce point where they can provide end-to-end solutions for city technology needs.

Cloud computing has had a significant influence on the development of smart cities, affecting the way cities manage and deliver services and enabling a broader set of players to enter the smart ci ty market.

Citizen engagement represents a complementary aspect of smart cities and although not strictly a technical consideration, relies on the data gathering and management discussed in the open data and big data sections.

Although this trend paper focuses on technological trends, as outlined in the introduction, smart c ities are complex ecosystems that cut across technological, social, organizational, and businessdo mains. Understanding the rollout of technologies and their relative importance in the ecosystem r equires understanding the business drivers that affect their deployment and uptake, and an overvi ew of the smart city marketplace

This report has highlighted a number of technologies whose evolution and deployment is contrib uting to the growth of smart cities.Some high level observations include the following: 1)smart vehicle parking based on cloud networking 2)smart dustbin for Eco friendly environment 3)smart lights which saves energy and improve security

2. ESTABLISH STAKEHOLDER OR USER PROFILE

- Name: XXX
- Company / Industry: AVAREST
- Job Title: URBAN/CITY PLANNER

- **What are your main duties?**
  - Update and maintain schedule data to ensure consistency and optimization
  - Create formal communication plan between both teammembersandmanagement
  - Maintain capital and non-capital spending plan
  - Meet all project established deadlines
  - Perform project progress monitoring
  - Understand competing business requirements and make recommendations

- **What deliverables do you produce?**
  - City transport.
  - 24 hours power supply
  - Government offices
  - Security surveillance
- **For whom?**
  - Citizens of the smart city
  - Educational institutions
  - Tourists
- **How is success measured?**
  - By decreasing transport cost for citizens
  - By implementing new technology
  - By helping citizens to live in ease way
- **Which problems interfere with your success?**
  - Low budget
  - Giving wrong requirements
  - Lack of skilled workers
  - Miss communication
  - coordination
  - Design errors
  - Public-private partnership

- **Which, if any, trends make your job easier or harder?**
  - If the requirements are clear than its makes job easier

3. ASSESSING THE PROBLEM

- **For which problems do you lack good solutions?**
  - problemwithdisposal of polluted waste
  - Problem with vehicle parking space
  - Problem with high current bills
  - Problems with online-services
- **What are they?**
  - Nothing else

Problem: problem with disposal of polluted waste

- **Why does this problem exist?**
  - Because of don't where to dispose the waste on correct time
- **How do you solve it now?**
  - Setup the sensors inside the dust bins, so that whenever the vin is full it will send the notification to the municipal authority
- **How would you like to solve it?**
  - By creating an app which can monitor the status of the bin, so that whenever the bin is full they can send the message to the concerned person so that he can come and collect the waste.

Problem: Problem with vehicle parking space

- **Why does this problem exist?**
  - Because they don't know is enough parking space is available
- **How do you solve it now?**
  - By using GPS they can find the parking space
- **How would you like to solve it?**
  - By installing the app which will show the free space to park the vehicles near to them using the GPS

Problem: problem with the High current bills

- **Why does this problem exist?**
  - So many reasons for this
  - 1.forget to turn off fans and lights
  - 2.high power consuming lights and fans etc…
  - 3.not using the renewable energy
- **How do you solve it now?**
  - By using more renewable energy
- **How would you like to solve it?**
  - Manufacture more less power consuming gadgets and electronics

Problem: problem with online services

- **Why does this problem exist?**
  - Because people want to complete their work in less time so that they use online portals
- **How do you solve it now?**
  - Proper code development
  - Proper distributing of software
  - Proper maintenance of the software
- **How would you like to solve it?**
  - By working more into it to identify the problems

4 UNDERSTANDING THE USER ENVIRONMENT

- **Who are the users?**
  - Local residents
  - tourists
  - industries
  - software companies
  - educational institutions
- **What is their earning(income) status?**
  - Most number of people belongs to middle class and below middle class
- **What is their economical background?**
  - Half of the city is middle class and below middle class
- **Which platforms are in use?**

- Online websites
- online car rental system
- online food order
- e-learning
- Online money transactions

What are your plans for future platforms?

- Building subways to control traffic jams
- fingerprint and eye scan while entering into the airport
- using electronic vehicles to control pollution
- connecting all home appliances with mobile so that easily control the devices

Which additional applications do you use that we need to interface with?

- Garbage sensors to monitor the bin status
- Automated messages to notify management to respond to the people requests
- Electronic tickets to enter inside the metro
- GPS for parking

What are your expectations for usability of the system?

- People like to follow the proposed system
- It should full-fill the needs of the citizens
- Traffic jam control
- Security surveillance should be high

What are your expectations for training time?

- As less as possible (for about 1 day)

What kinds of hard copy and on-line documentation do you need?

- City master planes
- Various departments details
- E-cop service details
- Educational institutions in the city
- cloud networking details

5. Recap for Understanding

You have told me (list stakeholder described problems in your own words):

- Transport problems
- Parking problems
- Electricity problems
- Pollution problems
- Internet connection problems

What, if any, other problems you are experiencing?

- Expenditure

6 ANALYST'S INPUTS ON STAKEHOLDER'S PROBLEM (VALIDATE OR INVALIDATE ASSUMPTIONS)

Which, if any, problems are associated with:

- E-cop services update the progress of your complaint
- The proposed system will notify before 24 hours to recharge power supply to home if the present power supply package expires
- Online ticket booking system will send the reminder to passengers before 24 hours of journey

Is this a real problem?

- yes

How do you currently solve the problem?

- We can send mail the concerned police officer through e-cop service
- By mailing the electricity department or contact the concerned person
- By calling customer care service

How would you like to solve the problem?

- By creating feedback loops
- While taking complaint feed the details of client to update the information in the e-cop service

How would you rank solving these problems in comparison to others you've mentioned?

- Electricity
- Traffic control
- Paying bills,recharges

-Ticket booking and use

7. ASSESSING YOUR SOLUTION

- **What if you could...**
  - Create feedback page in the online portal
  - Introduce a scratch ticket to enter inside the metro
  - Build more subways to control the traffic
  - Maintain the payment gateway properly
- **How would you rank the importance of these?**
  - Maintain the payment gateway properly
  - Create feedback page in the portal
  - Using e-ticket because paper free and easy to use
  - Using e-vehicles reduce the pollution and we can use more renewable energy

8. ASSESSING THE OPPORTUNITY

- **Who needs this opportunity in your smart city?**
  - graduates
  - business people
  - event planners
  - software companies
  - start ups
  - formers
  - laber
  - students
  - families
- **How many of these types of users would use the application?**
  - Students
  - formers
  - families
  - graduates
- **How would you value a successful solution?**

  - By creating a online portal to the every proposed system that meets all the stakeholder needs

9. ASSESSING RELIABILITY, PERFORMANCE AND SUPPORT NEEDS

- **What are your expectations for reliability?**
  - Displaying correct and up to date information
  - Do not display active session errors during filing compliant or money transaction
  - Not displaying personal information
  - Showing correct parking area

- **What are your expectations for performance?**
  - Logging out if not used for more time
  - Solving of Server errors (SITE CAN'T BE REACHED)
  - Increasing server usability size

- **Do you have special needs for support? What about maintenance and service access?**
  - No

- **What are the security requirements?**
  - Not showing the passwords
  - Avoiding leakage of important data stored in the databases such as user bank details
  - Generating one-time captcha to avoid automatic system-based login

- **What is the installation and configuration requirements?**
  - Proper code development
  - Proper distributing of software
  - Proper maintenance of the software
  - Proper checking for bugs, errors in the software and solving them well in advance

- **What are the special licensing requirements?**
  - Should take (buy) secured database
  - Should take the website licences

- **How will the software will be distributed?**
  - The website address has to be shared to all the users through mails or notice boards

- **What is the labelling and packaging requirements?**
  - Label should have the name of the company or website

Other Requirements

- **Which, if any regulatory or environmental requirements or standards must be supported?**
  - The website should be working in all the places
  - The database should be accessible
- **Can you think of any other requirements we should know about?**
  - No

10. WRAP-UP

- **Are there any other questions I should be asking you?**
  - No
- **If I need to ask follow up questions, may I give you a call?**
  - Yes

11. ANALYST'S SUMMARY

1. Inaccuracies on payments
2. Inaccuracies in data (ticket booking, transactions)
3. Inaccuracies in e-cop portal
4. Inaccuracies in security monitoring

STAKE HOLDERS REQUEST DOCUMENT

STAKE HOLDER: MUNICIPALITY

TABLE OF CONTENTS

1. INTRODUCTION:

a smart city is an settlement with optimized, smartly managed and properly connected resources.

SMART CITY IS CLEAN POLLUTION FREE. A smart city combine technology, luxury and power consumption to make life smoother and easier. smart city install sensor based nodes at every possible corner of the city so as to get the update from everywhere through lot. Smartly connected road, smart power generating house , big data processor and IOT are main building block for a smart city. A smart city is a developed in three major sector to be called a smart city and those are transport, energy and information and communication technology (ICT).

1.1 PURPOSE:

IOT give the ability to connect resources to different places and accesst hem from one location. A sensor node installed at a particular location give data to different dept of the city and help to understand the exact problem thus connecting different dept, of the city , the interconnected dept. provide better solution and it reduce the time to tackle and solve the problem

1.2 SCOPE:

Scope refers to the detailed set of deliverables or features of a project. These deliverables are derived from a project's **requirements**.

Smart City could include Smart Governance, Smart utilities, Smart Street lighting, Smart parking etc.

the practice of researching and discovering the requirements of a system from users, customers, and other stakeholders.

And deliver the desired product to the users

When it’s come to our document there is so many of thing need to be delivered. People spending lot of time to find secure car parking space near to them. Smart vehicle parking help people to do that.The improper disposal of municipal waste has a serious & dangerous impact on a wide range of areas. Using Smartbin we can reduce the pollution and save time and fuel.

Problem with traditional lighting is that “it consumes more power and cost increases”. With the help of smart lighting we can minimize the power consumption and we can operate then with our smart phone.

So like this there are so many similar thing will change with IOT things

1.3 DEFINITIONS, ACRONYMS AND ABBREVIATIONS

CITIZENS: people who belong to the

smart city **PROVIDERS:** who provides

facilities **SERVERS:** it is used to use the

website

CLOUD NETWORK: to operate gadgets or electronic things

manually **RENEWABLE ENERGY:** to reduce the pollution and

using sunlight effectively **PERFORMANCE:** it is about how the

proposed system is working

1.4 REFERENCES:

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supply#view-article

1.5 OVERVIEW

A **smart city** is a designation given to a **city** that incorporates information and communication technologies (ICT) to enhance the quality and performance of urban services such as energy, transportation and utilities in order to reduce resource consumption, wastage and overall costs.

the main features adequate water supply, assured electricity supply, sanitation, including solid waste management, efficient urban mobility and public transport, affordable housing, especially for the poor, robust IT connectivity and digitalization, good governance, especially e- Governance and citizen participation,

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Cloud computing has had a significant influence on the development of smart cities, affecting the way cities manage and deliver services and enabling a broader set of players to enter the smart ci ty market.

Citizen engagement represents a complementary aspect of smart cities and although not strictly a technical consideration, relies on the data gathering and management discussed in the open data and big data sections.

Although this trend paper focuses on technological trends, as outlined in the introduction, smart c ities are complex ecosystems that cut across technological, social, organizational, and businessdo mains. Understanding the rollout of technologies and their relative importance in the ecosystem r equires understanding the business drivers that affect their deployment and uptake, and an overvi ew of the smart city marketplace

This report has highlighted a number of technologies whose evolution and deployment is contrib uting to the growth of smart cities.Some high-level observations include the following: 1)smart vehicle parking based on cloud networking 2)smart dustbin for Eco friendly environment
3)smart lights which saves energy and improve security

2.ESTABLISH STAKEHOLDER OR USER PROFILE:

- Name: XXX
- company/ industry: Smart City Development
- Job Title: Municipal Corporation
- **What are your key responsibilities?**

Helping city operators to identify ways to save energy, use their resources more effectively, address environmental issues such as urban flooding, reduce waste production, and improve living conditions for citizens.

- **What deliverables do you produce? For whom?**

Water supply, sewerage, solid waste management and storm water drainage this all things they manage effectively.

- **For whom?**
  - Citizens
- **How is success measured?**

Success is measured by doing the things effectively and maintaining the city clean. The project is going in a right way.

- **Which problems interface with your success?**
  - Duty timings of municipal workers is not known.
  - Workers don't perform their assigned duty
  - Garbage drums are not cleared regularly
- **Which problems interface with your success?**
  - Un sufficient wi-fi connection
  - Careleness of workers
- **Which if any trends make your job easier or harder?**

If the resources are connected properly and all systems are managed smartly, it will easier for the user to use the system.

2. ASSESSING THE PROBLEM:

- **For which problems do you lack good solution:**
  - Illiterate people cannot understand the new technology
  - Inaccuracies data
- **What are they?**

  Nothing else

Problem: Illiterate people cannot understand the new technology

- **Why does this problem exist?**
  - Due to less knowledge about the technology
- **How do you solve it now?**
  - By providing the information about the new technology
- **How would you like to solve it?**
  - Conducting the training classes for the people.

3. UNDERSTANDING THE USER ENVIRONMENT:

- **Who are the users?**
  - Citizens
- **What is their educational back ground?**
  - Good qualification
- **What is their computer back ground?**
  - They already have basic knowledge about the all the components of the computer
- **Are you users experienced with this type of application?**
  - Yes
- **Which platform are in use?**
  - Online portals using IOT devices
- **What are your plan for future platforms?**
  - An online portal that deals with complete functionalities of the municipal system.
  - A portal that does not show unauthorized errors

- A portal that displays a complete and relevant data

- **Which additional applications do you use that we need to interface with?**
  - The system is linked to all the department and to the user administration module.
  - The system want to show the map navigation
- **What are your expectations for usability of the product?**
  - It should work at any time
  - It should show all the details about the areas
  - It should show the
- **What are your expectations for training time?**
  - As less as possible
- **What kinds of hard copy and online documentation do you need?**
  - Data of the areas
  - Networking details
  - Details of the workers

4. RECAP FOR UNDERSTANDING:

- **You have told me(list stakeholder described problems in your own words);**
  - Illiterate people cannot understand the new technology
  - Inaccuracies data
  - Improper services
  - Unsufficient data conection
- **Does this represent the problems you are having with your existing solution?**
  - Yes
- **What, if any other problems you are experiencing?**
  - People want to know the new technology.
  -

5. ANALYST'S INPUTS ON STAKEHOLDER'S PROBLEM (VALID OR INVALID ASSUMPTIONS)

- **Which , if any problem associated with:**
  - The system has to give the updates everday
  - The proposed has to notify the where the garbage bins are fulled and also drainages.
- **Is this a real problem?**
  - Yes
- **What are the reasons for this problem?**
  - Poor management system
  - Technical problems
  - Outdated system and architecture
  - Improper maintenance of the data
- **How do you currently solve the problem?**
  - By consulting the higher authorities
  -

6. ASSESSING YOUR SOLUTION:

- **What if you could?**
  - By alerting the workers
  - By maintaining the proper data connection
- **How would the rank the importance of these?**
  - Getting feedback from the users
  - Maintaining the proper services to the citizens.

7. ASSESSING THE OPPORTUNITY

- **Who needs this application in your organization?**
  - Citizens
  - Government
- **How many of these types of users would use the application?**
  - Citizens
  - Government
  - Municipal authorities
- **How would you value a successful solution?**

By creating a online portal and making all the needs to meets the requirements of the stakeholder needs

8. ASSESSING RELIABILITY, PERFORMANCE AND SUPPORT NEEDS:

- **What are your expectations for reliability?**
  - Making all the facilities access to everyone
  - Checking whether all the things are working properly in the city
- **What are your expectations for performance?**
  - Accessing wifi to the whole city
  - Solving of server errors
  - Increasing server usability size
- **Will you support the product, or will others support it?**
  - I will support the problem
- **Do you have special needs for support? What about maintenance and service access?**
  - No
- **What are the security requirements?**
  - keeping all the data secured
  - For secure data we have to keep code that makes the third parties cannot open the data
- **What are the installation and configuration requirements?**
  - Proper maintenance of the software
  - Solve the bugs and errors at the beginning
- **What are the special licensing requirements?**
  - Should take secure database
  - Should take the website licenses
- **How will the software will be distributed?**
  - By sending update option to all mobiles.
  - By giving information about the software through social media and online websites
- **What are the labeling and packaging requirements?**
  - label should have the name of the company or website

Other Requirements

- **Which, if any regulatory or environmental requirements or standards must be supported?**
    - The website should work all the places
- **Can you think of any other requirements we should know about?**
    - No
    -

9. WRAP-UP

- **Are there any other questions I should be asking you?**
    - No
- **If I need to ask follow up questions, may I give you a call?**
    - Yes
    -

10. ANALYST'S SUMMARY:

- Illiterate people cannot understand the new technology
- Inaccuracies data
- Improper services
- Unsufficie
- nt data connection

USE CASE SPECIFICATION DOCUMENT FOR "ACCOUNT" USE-CASE:

Name of the use-case	Create Account
Description	The user gives total details about
Actors	Citizens, administrator, service providers
Flow of events	------
Basic flow	1. Login to the app 2. Using id and password or else creating a new account 3. Select account 4. Fill the details like address, mail id, aadhaar details, bank Account details, pan details. 5. The system displays the total details of the citizen 6. And the use-case ends
Alternate flow	Alternative flow :invalid details 1. The user opens the app 2. User selects the account button 3. Fills all the details of the citizens. 4. When the validation process takes place, the validation end's and show invalid details 5. And the page will be redirected to the details which are wrongly entered
Pre-conditions	1. The app should access to the internet connection 2. The user should accept the terms and conditions and give all the details
Post-conditions	The system should update the details according to the users request
Special requirements	1. Accuracy 2.

USE CASE SPECIFICATION DOCUMENT FOR "MAINATAINING TRAVELLING FACILITES" USE-CASE:

Name of the use-case	Maintain travel facilities
Description	The user can book tickets through the app
Actors	Citizens, administrator, government
Flow of events	----
Basic flow	1. Login into the app 2. Select the travelling facilities 3. Select the date and place and the destination 4. Select the bus need to travel 5. And the use-case will be terminated
Alternate flow	Alternate flow: if the seats are full 1. Login into the app 2. Select the travelling facilities 3. Select the date and place and the destination 4. Select the bus need to travel 5. the ticket cannot be booked because the seats are full
Pre-conditions	1. user should know the user id and password 2. user should know the date and place of travel
Post-conditions	User books the ticket to the place where user need to travel
Special requirements	

USE CASE SPECIFICATION DOCUMENT FOR "MAINATAINING HEALTH FACILITES" USE-CASE:

Name of the use-case	Maintaining health facilities
Description	The user can get health tips and maintain the health
Actors	Citizens ,administrator ,doctor
Flow of events	----
Basic flow	1. user login to the app 2. create account in the app 3. explain the health problem and send the valid data through the app 4. user gets health tips from the doctor and they send the feedback 5. user logout from the app 6. And the use case will be terminated
Alternate flow	1. Login to the app 2. Create account in the app 3. Explain the health problem of the user 4. User sends the invalid data 5. The data cannot be sent and the feedback cannot be received
Pre-conditions	1. User should know user id and password 2. User should be able explain the problem in the form of data
Post-conditions	The user receives the feedback and logout from the app
Special requirements	

USE CASE SPECIFICATION DOCUMENT FOR "TAX PAYMENT" USE-CASE:

Name of the use-case	Tax payment
Description	User pays the tax through the app
Actors	Citizens, admin
Flow of events	----
Basic flow	1. User login to the app 2. User selects the tax payment option 3. Select the field where the tax need to be paid 4. Choose the payment gateway for the payment of tax 5. Pay the tax through the certain option 6. And the use case will be terminated
Alternate flow	Alternative flow: tax not necessary to be paid of low income 1. Login to the app 2. Select the tax payment option 3. Choose the field where tax need to be paid 4. User cannot pay the tax because of the less income Alternative flow: insufficient amount in the account 1. Login to the app

	2. Select the tax payment option 3. Select the field where tax need to be paid 4. Choose the payment gateway for the payment of the tax 5. Tax cannot be paid because of insufficient amount in the account
Pre-conditions	1. User should know field to pay the tax 2. User should get high income for the payment of the tax
Post-conditions	User pays the tax through the app
Special requirements	

USE CASE SPECIFICATION DOCUMENT FOR "FIND PARKING" USE-CASE:

Name of the use-case	Find parking
Description	User finds the parking place to park the vehicle
Actors	Citizen
Flow of events	----
Basic flow	1. Login to the app 2. Select the option to find the free parking place 3. Search for parking place 4. Book for the parking place for the vehicle to be parked through the app 5. And the use case will be terminated
Alternate flow	Alternative flow: cannot find free parking place 1. Login to the app 2. Select the option to find free parking place 3. Search for the parking place 4. Cannot find the free parking place and cannot place the vehicle
Pre-conditions	1. User should know the login in and password 2. User should know how to search the parking place
Post-conditions	User finds the free parking place to park the vehicle
Special requirements	

USE CASE SPECIFICATION DOCUMENT FOR "PLANNING EVENTS" USE-CASE:

Name of the use-case	Planning events
Description	User can plan the events through the app
Actors	Citizens , Event planners
Flow of events	----
Basic flow	1. user login to the app 2. search for event planners 3. get help from the event planners to plan the event 4. register the event in the certain date and time 5. And the use case will be terminated
Alternate flow	Alternative flow: cannot register events 1. Login to the app 2. Search for the event planners 3. Check event planners are available in the certain date and time

	4. user cannot register the events due to unavailability of event planers
Pre-conditions	1. user should know the events to register 2. user should know who are the event planners
Post-conditions	User plans the event and register the event with the help of event planners
Special requirements	

USE CASE SPECIFICATION DOCUMENT FOR "REGISTER COMPLAINT" USE-CASE:

Name of the use-case	Register complaint
Description	User login to the app and registers the complaint
Actors	Citizens, government
Flow of events	----
Basic flow	1. user login to the app 2. check for the option to register the complaints 3. provide the complaints with necessary data 4. provide the proof for complaints if necessary 5. And the use case will be terminated
Alternate flow	Alternative flow: cannot register complaints due to technical problem 1. Login to the app 2. Check the option to register complaints 3. Provide the complaints 4. Provide the proof for the complaints if necessary 5. User cannot register complaints due to technical problem
Pre-conditions	1. User should know how to register the complaints 2. User should know what are the complaints 3. User should have the proof for the complaints
Post-conditions	User registers the complaints with the necessary proof
Special requirements	

USE CASE SPECIFICATION DOCUMENT FOR "MAKE ONLINE TRANSACTIONS" USE-CASE:

Name of the use-case	Make online transactions
Description	User can make the online transactions with different people
Actors	Citizens
Flow of events	----
Basic flow	1. Login to the app 2. Check for the send money option 3. Enter the money need to send 4. Enter the password to make transaction 5. And the use case will be determined
Alternate flow	Alternative flow: invalid password 1. Login to the app 2. Click send money option 3. Enter the money 4. Enter the password 5. Transaction fails due to invalid password Alternative flow: unsufficient balance

	1. Login to the app 2. Click send money option 3. Enter the money 4. Enter the password 5. Transaction fails due to unsufficient balance
Pre-conditions	1. User should know the transaction id and password 2. User should know the another user to send money
Post-conditions	User makes the transaction successfully with certain amount
Special requirements	

USE CASE SPECIFICATION DOCUMENT FOR "CHECK FAQ'S" USE-CASE:

Name of the use-case	Check FAQ'S
Description	User can check all the doubts in the app
Actors	Citizens, admin
Flow of events	----
Basic flow	1. Login to the app 2. Search for the option to check FAQ'S 3. Click on the FAQ'S 4. Various solutions will be provided there 5. Check for doubt need to be clarified 6. And the use case will terminated
Alternate flow	Alternative flow: invalid FAQ'S 1. Login to the app 2. Search for the option to check FAQ'S 3. Click on the FAQ'S 4. But the solution is not provided to the problem 5. So user cannot check the FAQ'S because the solution is not provided to the particular problem
Pre-conditions	1. User should know the user id and password 2. User should have the doubts regarding the problem
Post-conditions	User checks the FAQ'S and get the solution from that
Special requirements	

USE CASE SPECIFICATION DOCUMENT FOR "PAY MUNICIPAL BILLS" USE-CASE:

Name of the use-case	Pay municipal bills
Description	User can pay the municipal bills through the app
Actors	Citizens, government, admin
Flow of events	----
Basic flow	1. User login the app 2. Click pay bills option 3. Search for type of bill provided 4. Enter the necessary details 5. Make the payment 6. And the use case will be terminated
Alternate flow	Alternative flow: invalid user name and password 1. User opens the app 2. Enter the necessary details 3. Click submit button

	4. Login fails due to invalid user name and password Alternative flow: no bills provided to the user 1. User opens the app 2. User login to the app 3. Enter the necessary details 4. Check for the bills 5. User cannot pay the municipal bills because there are no bills provided online
Pre-conditions	1. Citizen should know the user id and password 2. Citizen should know the necessary details 3. Citizen should know type of bills to be paid
Post-conditions	User pays the municipal bills online through the app
Special requirements	

VISION DOCUMENT

1. INTRODUCTION

The purpose of this document is to collect, define and analyze high level features and needs of smart sity development system. It focuses on the capabilities required by stakeholders and target users. And why these needs exist. The details of how the system fulfills the requirements of stakeholders with detailed view of use case diagrams and supplementary specifications. A smart city combine technology, luxury and power consumption to make life smoother and easier. smart city install sensor based nodes at every possible corner of the city so as to get the update from everywhere through lot. Smartly connected road, smart power generating house , big data processor and IOT are main building block for a smart city. A smart city is a developed in three major sector to be called a smart city and those are transport, energy and information and communication technology (ICT).

1.1 purpose

The purpose of this document is to know all the needs of the citizen and make them available of all their needs better than their past.. The main purpose for preparing this document is to give a general insight into the analysis and requirements of the existing system or situation and for determining the operating characteristics of the system. IOT give the ability to connect resources to different places and access them from one location. A sensor node installed at a particular location give data to different dept of the city and help to understand the exact problem thus connecting different dept of the city
, the interconnected dept. provide better solution and it reduce the time to tackle and solve the problem.

1.2 Scope

Scope refers to the detailed set of deliverables or features of a project. These deliverables are derived from a project's **requirements**. There is a lot of scope for the document. We can further investigate the all the required question to the user/ stakeholder to develop a product that meets all the stake holder needs and satisfy the users and customers.

DEFINITIONS, ACRONYMS AND ABBREVIATIONS

CITIZENS: people who belong to the smart city

PROVIDERS: who provides facilities

SERVERS: it is used to use the website

CLOUD NETWORK: to operate gadgets or electronic things manually

RENEWABLE ENERGY: to reduce the pollution and using sunlight effectively

PERFORMANCE: it is about how the proposed system is working

REFERENCES:

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OVERVIEW

A **smart city** is a designation given to a **city** that incorporates information and communication technologies (ICT) to enhance the quality and performance of urban services such as energy, transportation and utilities in order to reduce resource consumption, wastage and overall costs.

the main features adequate water supply, assured electricity supply, sanitation, including solid waste management, efficient urban mobility and public transport, affordable housing, especially for the poor, robust IT connectivity and digitalization, good governance, especially e-Governance and citizen participation,

From a technological perspective, the smart city ecosystem is a complex one co mprising many technology areas. Major players operate in several areas, provdi

ng solutions that complement (and sometimes overlap) other players. Those co mpanies that are able, are working toward a convergence point where they can p rovide end-to-end solutions for city technology needs.

Cloud computing has had a significant influence on the development of smart ci ties, affecting the way cities manage and deliver services and enabling a broader set of players to enter the smart city market.

Citizen engagement represents a complementary aspect of smart cities and altho ugh not strictly a technical consideration, relies on the data gathering and manag ement discussed in the open data and big data sections.

Although this trend paper focuses on technological trends, as outlined in the intr oduction, smart cities are complex ecosystems that cut across technological, soc ial, organizational, and businessdomains. Understanding the rollout of technolo gies and their relative importance in the ecosystem requires understanding the b usiness drivers that affect their deployment and uptake, and an overview of the s mart city marketplace

This report has highlighted a number of technologies whose evolution and deplo yment is contributing to the growth of smart cities.

Some high-level observations include the following:

1)smart vehicle parking based on cloud networking

2)smart dustbin for Eco friendly environment

3)smart lights which saves energy and improve security

2. Positioning

Intelligent city management systems for governance and service delivery, including intelligent transport systems, smart waste management and robust information technology connectivity, will improve urban services, quality of life and employment opportunities. It also will open up tremendous investment and growth opportunities across several sectors. Growth will be augmented by leveraging Indore's commercial strengths and cultural heritage, and responding appropriately to concerns of inclusiveness and sustainability. It can be available to all the people.

2.2 problem statement

The problem of	Channeling finance to the smart city
Affects	
And results of	1. Economy is the key point of the development 2. If there is no proper economy, their won't be a proper development in the city
Benefits of solution	1. Rapid Development of the city 2. Sustainable development

2.smart vehicle parking

The problem of	People spending lot of time to find secure car parking space near to them.
Affects	More "fuel consumed" and it is a "Time" wasting thing
And results of	People park their cars in no parking areas. So that so many problems encounters
Benefits of solution	With the proposed solution of smart vehicle parking, 1)finding place very easily using MOBILE NETWORK and GPS 2)vehicle security getting better with the help of cloud networking 3)it saves two important things 1)TIME 2)FUEL

3.smart bin

The problem of	The improper disposal of municipal waste has a serious & dangerous impact on a wide range of areas
Affects	Living beings near to this garbage bins have severe health hazards

And results of	Water contamination is the main thing Pollution increases Economic growth degradation
Benefits of solution	With the proposed solution of SMARTBIN, 1) we can easily collect the dump by using cloud networking 2) recycling production also increases 3) saving of time & money

2.3 product position statement

For	Citizens and stakeholders
who	What to access for different facilities provided by the government
The (smart city development system)	Is the system in which citizen can access to all the facilities provided by the government in a single system.
that	Helps the user to access different facilities
unlike	Other government apps
Our product	Make user easy to access all the facilities in a single system

Product overview

Stakeholders and Users description:

3.1 -market demographics:

Smart city development helps citizens to live in an easy way. this development also helps to save time and energy. Smart technology can also improve city living at the personal level. E-governance programs offer a direct link between citizens and public administrators. Smartphone apps may address public health, help people improve their energy efficiency or even just find the nearest parking space or ride sharing opportunities.

3.2 – stakeholders summary:

Name	Description	Responsibilities
Financial organizations	The stakeholder is neither directly related to the system nor uses the system. These financial institutes may or may not be under government control. They are one of the key stakeholders .	They are giving loans to the formers for the less interest. They can also maintain and update the details of the people. They can give loans to the industries for less interest so that more industries established in the city

Name	Description	Responsibilities
Municipal authorities	The stakeholders are directly related to the system. And they are using the system directly. They are working to fulfil the needs of the citizens. these authorities are strictly follow the government instructions	These authorities are the main administrators. they supply's waste to the city. The supply' power to the city 24/7.They keeps the city clean with the help of waste collectors.

Name	Description	Responsibilities
City planners/designers	The stakeholders are indirectly related to the system. They are the torch barrios for the best infrastructure of the city. These planning companies may be working for government or working for private authorities.	It involves the **design** of buildings, groups of buildings, spaces and landscapes, and establishing the processes that make successful development possible.

3.3User summary

Name	Description	Responsibilities
Citizens of the city	The stakeholders are directly related to the system and uses the system directly. They are the key stakeholders of the smart city. They are doing different jobs and supporting to the development of the smart city directly and indirectly.	The participation of citizens involves in large number of applications such as online banking , finding parking space using mobile apps, paying bills based on cloud networking.

Name	Description	Responsibilities
Tourists	The stakeholders are directly related to the system. Tourism is one of the key income resource to the smart city.	They Knows the culture of the city and they can enjoy the new technology in the smart city Infrastructure and tall building and modern transport facilities all these are additional attraction to the smart city.

Name	Description	Responsibilities
Academic& research institutes.	The stakeholders are directly related to the system. They are helping the students and research scholars. Students and research scholars no need to go other places by establish these institutes.	They helps to increase the literacy rate of the city and country. they need to appoint the skilled faculty. They can help students to be an outstanding professional in their desired field.

3.4 USER ENVIRONMENT:

The users of the system are citizens of the city, tourists (temporary inhabitants of the city), academic & research institutes. The members and the users are assumed to have basic knowledge of the computers and Internet browsing. the financial organizations are providing finance to the people and private industries. Academic and research institutes are the other user, they can help

to increase the literacy of the city as well as the country. Citizens are involved in most number of systems in the smart city such as parking space ,online payments and bookings.

3.5 Stakeholder profile:

3.5.1 Municipal authorities:

Representative	xxx
Description	The stakeholders are directly related to the system. And they are using the system directly. They are working to fulfil the needs of the citizens. these authorities are strictly follow the government instructions
Type	City administrators
Responsibilities	maintaining the records maintain the blue print of the city Supply the water to the city and Power supply to the city Collect waste around the city and treat them in a sustainable way.
Success Criteria	By proper administration to the smart city
Involvement	They involve in system maintenance
Deliverables	None
Comments / Issues	None

3.5.2 City planners / designers

Representative	ASD
Description	The stakeholders are indirectly related to the system. They are the torch barrios for the best infrastructure of the city. These planning companies may be working for government or working for private authorities
Type	Architect and civil engineers
Responsibilities	It involves the **design** of buildings, groups of buildings, spaces and landscapes, and establishing the processes that make successful development possible. Working on how to minimizing land usage Helps to reduce the budget And work better by the help of other resources
Success Criteria	By giving infrastructure plan to the government and private companies
Involvement	They involve in the system designing
Deliverables	None
Comments / Issues	None

3.5.3 Financial organizations:

Representative	123AS
Description	The stakeholder is neither directly related to the system nor uses the system. These financial institutes may or may not be under government control. They are one of the key stakeholders .
Type	Financial providers and exports
Responsibilities	To check the dues of the people To update the loan details that is provided to the citizens or industries To manage all the financial related transactions occurring in the bank or in the online To update the status of the transactions for the users. To generate financial reports
Success Criteria	By proper tallying of the amounts

Involvement	They involved in the capital and financial transactions
Deliverables	None
Comments / Issues	None

3.6 -User profiles:

3.6.1 Citizens of the city:

Representative	ZZZ
Description	The stakeholders are directly related to the system and uses the system directly. They are the key stakeholders of the smart city. They are doing different jobs and supporting to the development of the smart city directly and indirectly.
Type	key investors of the city
Responsibilities	The participation of citizens involves in large number of applications such as 1)online banking 2solving their problems using technology 3) paying bills based on cloud networking etc.
Success Criteria	Paying taxes, bills on correct time.
Involvement	. participating in public private partnership
Deliverables	None
Comments / Issues	None

3.6.2 tourists

Representative	YYY
Description	The stakeholders are directly related to the system. Tourism is one of the key income Resource to the smart city Tourism provides so many jobs to the people of the city
Type	Temporary inhabitants of the city
Responsibilities	1)They come to know the culture of the city . 2) they can enjoy the new technology in the smart city. 3)Infrastructure and tall building and modern transport facilities all these are additional attraction to the smart city.
Success Criteria	By proper Understanding the culture of the city
Involvement	Involve in the activities of the city
Deliverables	None
Comments / Issues	None

3.6.3 Academic & research institutes

Representative	KKK
Description	The stakeholders are directly related to the system. They are helping the students and research scholars. Students and research scholars no need to go other places by establish these institutes.
Type	Schools & colleges
Responsibilities	1)They helps to increase the literacy rate of the city and country. 2)they need to appoint the skilled faculty. They can help students to be an outstanding professional in their desired field.
Success Criteria	Having good infrastructure & skilled faculties
Involvement	Help students to be a professional in their desired field
Deliverables	None
Comments / Issues	None

3.7 key Stakeholder or User Needs

Need	Priority	Current Solution	Proposed Solutions
Easy to access for all the citizens through there adhaar number	high	No system	Making a clear database Of all the databases
availability in any time	high	It is offline system	It can be used as link in mobile or any type of operating system
notification of all the new details as soon as updated	medium	It is offline system	The users receives all the notifications of the updates in the app
can access to all the best facilities available in city in a single system	medium	It is offline system	Integrated with all the systems related to the smart city
Can make all kind of payments through online	medium	It is offline system	All the payments can be done in a single app so that people can access them easy
citizens can check their status up to date	high	It is offline system	Updating all the data
Availability for 24*7	High	It is offline system	It can be used as link in mobile or any type of operating system
Paying the dues	High	It is offline system	The due will be shown in the payments section. It can be linked up with online payment portals

3.8 Alternative and competition : no

4.1 Product Perspective

At its most basic, a smart city is a city that uses information and communications technology including traditional IT and advanced Internet of Things (IoT) technologies to improve not only the way it operates, but also the services it delivers to its citizens. It leverages digital technologies across infrastructure — including transport and traffic management, construction and buildings, energy and water supply, and waste management, to name a few as well as across services, including public administration, health and safety, culture and education.so in our system we make citizen to access all the facilities in a single system. Our product is integrated with lot of other systems so every user can access to all the facilities in a single system.

4.2 summary of capabilites

Customer benefit	Supporting features
Access from anywhere	Users can access the software from anywhere. Easy to access from any type of operating system and mobile phone
Assurance for server	There will not be any server problem even though many users use at a time
No problem in files	Software can accept any type of format and can open any format at any pc or mobile
Uninterrupted video lectures	There should not be any problem in the video lecture if any government or service providers uploaded the file
Updated version of books	Every material will be upgraded without any late
Customer satisfaction is improved because nothing falls through the cracks.	Problems are uniquely itemized, classified and tracked throughout the resolution process. Automatic notification occurs for any aging issues.
Management can identify problem areas and gauge staff workload.	Trend and distribution reports allow high level review of problem status.

4.3 Assumptions and Dependencies

Smart city development system must support the following:

- Access through android \mac
- Access through web
- Storing all the details accurately and updating them every time
- Making the system access to large number of citizens
- Using the website through OTPS ,invoice and through registrated email id

4.4 Cost and Pricing

The citizen should have active internet connection for usage of the app and the cost for the smart city development system is sufficient for the customer

4.5 Licensing and installation

The smart city development system is a system which used access all the government details and public so the licensing is very important for our system. The installation of our system is easy as it can be downloaded in any operating system and the link can be provider through our website so many people can access it.

5 product features

5.1 Easy to access for all the citizens through there adhaar number

5.2 availability in any time

5.3 notification of all the new details as soon as updated

5.4 can access to all the best facilities available in city in a single system

5.5 Can make all kind of payments through online

5.6 citizens can check their status up to date

5.7 citizens billing details, taxes, traveling facilities, muncipal bills etc

5.8 can find parking place if there is a heavy traffic

5.9 it is system that is integrated with lot of other systems

5.10 you can find all the transaction receipts

6. constraints

- **every** citizens details are confidential and will not be access to any one
- the system is very protected that no will be able to access it through any illegal activites
- the user must keep password or pin
- only administrator can know about the citizen details

7. Quality Ranges

7.1 Security

Cyber security and privacy acts have been introduced to ensure security is given the foremost importance. Existing regulations have been updated at periodic intervals to incorporate the smart city security perspective. Cyber security information sharing platforms have been created for collaboration across sectors, including smart cities, finance and energy.. A conducive environment has also been set up to promote cyber start-up hubs.

7.2 Availability

The system should be online 24 hours

7.3 Usability

The system should understand to all the citizens

7.4 Maintainability

The maintains of the system should be easy

7.5 Flexibility

The system should allow the access of multiple users

8. Precedence and Priority

the features in this document will be given in a single release that will support all the web and mobile based applications.

9. Other Product requirements

9.1 Application standards

- the user must have internet connection
- the user must access to a system

9.2 system requirements

- The system needs to have any kind of web browser.
- All the mobile and web systems should access internet

9.3 performance Requirements

- The Splash Page or Information page should be able to be downloaded within a minute using a 56K modem.
- The access time for a mobile device should be less than a minute. The information is refreshed every two minutes

9.5 Environmental Requirements

10. Documentation

Requirements 10.1 User Manual

The Smart City project is creating an innovation network between governments and academic partners in that is leading to excellence in the development and take-up of e-services and e-government, and which is setting new standards for e-service delivery.

10.2 Online Help

The technical development of smart city development system, services and applications is proceeding apace, based on areas such as IoT (Internet of Things), cloud services and big data.

10.3 Installation Guides, Configuration, and Read Me File

Includes the installation files, configuration and read me file

10.4 Labeling and packaging