	NAME: Kartik Bholenath Yadau
	ROLL NO: 46 SUB: TOT Page No.
	ASSIGNMENT No. 3 Date Dr.D.Y.PATIL Technical Campus
2,08,218	
01.7	Explain the steps involved un the IOT design
	Methodology - man point and and cold gold
	1 (Choadia)
	- The IOT Design Methodology provides a systematic
es jour William to	process to develop I LOT - based applications or systems.
kryet	The key steps are and it is the mount
1.	Purpose & Requirements Identification
11: 141:	- Define the main parpose of the LOT application.
	- Identify the asor requirements (e.g. data to be collected,
÷	devices to be connected, expected output).
	e in Nicola College Conglic d
El 9.	Process Specification
_	- Describe the processes that will occur in the IOT
	Sustem.
1 E	- Example : In a smart agriculture system > Soil
CONF. INC.	moisture sensing data transmission irrigation control
	ratification profession to the control of the section of the secti
3	Domain Model Specification
	- Model the entities and their relationships
The con	Ex: Soil sensor - sends data to cloud - decision engine
	-> water pump actuator.
	. 0
4	Information Model Specification
N a	- Define the type, format, and structure of data
	- Ex! temperature ou floch, Time as timestamp.
	송보기의 공연방병사의 (11. 12.14명의 분보사는 이번에 <u>대표했다</u> 면 보고 생각이라는 생각하다) 기본 (1.

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	Date Second Committee
5.	Service Specification
	- Identify the services the system will provide
	(eg- Heal-time monitoring, remote control, alors).
Ç.	Tot Level Specification:
	- Decide which TOT level ( out of 5 levels: Perception
	Metwork, Edge, Middleware, Application) will be used.
7-	
~1^	Functional View Specification
- 1	Tonchonalities to Joy levels and identify
F 1 ==	mitractions between devices and services.
8-	One of the first the state of the state
0	Operational View Specification
	- Define how the system operates in Heal-world
	Conditions (connectivity, availability, Scalability).
9.	Device & Component Integration
12 FB 1751 13 FB 2	- Chanse appropriate sensor
196 V 18 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	protocols, Cloud platforms, and integrate them.
10.	Testing & Deployment
ve sale escite	- Test the IOT system in real-world scenarios and
	deploy it for end users
	prime into the later of million of the same of the
3	rely to real establishment on the final social and
	Elevente en semi de la company

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Q.2.	Illustrate the different pillars of IoT.
to at	is elicional report Portes none
<del>-7</del>	- The pillars of TOT are the fundamental building blocks
<b>\(\frac{1}{4}\)</b>	that enable Iot systems to function.
	- Hireless tech to identify & track objects people wing
	radio waves
3 ) 14	Core Parts:
	· Tags (Passive Active) ! mas la la, i : ost
	- Store IDs   data
	Readers   Antennas:
	- Read tagidato imma . promis . ma
	· Middleware   DB:
	- filter, aggregate, route data
- The st	Provides automatic identification, linking physical
	assets to digital records foundation for inventory,
	asset tracking, acress control.
it Hilly t	Examples! Retail Inventory Library books
	3/1/2018/12/18/09/1
	NOTE: Passive tuys are low-cost & buttery-less;
	Active itags have range but need power
	Mill murit
0]	WISNI (Wireless Sensor Network)
is in Chief	Network of sensor nodes (min + sensor (s) + radio
	+ power) that sense environment and communicate,
State Co	anofiten multiphopy your prime in hydrick
n n	remaining the test of

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. My 4 + 20 1/18 (9)	Technical Campus
	Core parts:
, , , , , , ,	· Sensor Modes: Temperature humidite mation at
eastly poil	· Topology: Stor   mesh   free
	· Gateway   SINK: bridges WSH to IP   cloud
,	- Protocols Tech: JEEE 802.15.4 (ZiBBee), 6 LOWPAN Thread
18 1 1 3 mg	BLE Meshoj : Additional of trate material.
	Alger Citizen
	Provides Scalable, low-power data acquisition from
	the physical world.
	white of the property of
	Example: Smart agriculture fields, environment
	monitoring, smart buildings- book
	i dul smala ne tim .
3]	M2M (Machine-to-Machine Communication)
lasiando	- Direct device + to -device   croud data exchange with
	icition asing planting forms.
	· Connectivity: Cellular (26/34/46-154), Ethernet, Wifi,
	LPWAN, Zig Bee, BLE.
	Be profited & reco cool soo each sylesof : stoly a
	· Protocols: MOTT COAP HTTP REST AMOP SMS-based in
	legacy M2M.
	/ amounty remail ensighild) togety ( 1000 )
ibort()	> Real-time telements commands, and event -driven auto mat
	a donos : héterogenéous devices built l'accept
	Examples: Smart meters auto-reporting vending machines
	restock alerts, freet telematics

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	Iecnnical Campus
4]	SCADA (Supervisory Control And Data Acquisition)
	Sind on the first tar with which
7	- Industrial control architecture for monitoring fcontrolling
	processes Clarous Sitcs.
	- Core Parts:
	- Field Devices! RTUS, PLCS, Sensors actuators
	· Communication? field busies I inclustrial Ethernet
, 1	. SCADA Server & HMI; data acquisition, alarms, hends
	Operator control
	South to the total a
	>-Brings supervisory control/felemeny From plants, grids,
	Pipelines unto the IOT world;
	- Modern IIO7 integrates SCADA data with cloud analytics
	are proof quein the lost and
	Examples! Power grid monitoring, water freatment, oil &
	gas pipelines, factory automation.
	· istable traits about combine -
	NOTE! Security is critical Extetwork segmentation, authoritic
	, patching).
03.7.	Explain the concept of Machine + to - Machine (M2M)
Thomastia	Communication: In the Context of Tor. 131
	Machine-to-Machine (M2M) communication refers to the
	direct exchange of duta between devices without
	human intervention: 00 1 0000 00

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0	Role in Joy:
	Tot heavily depends on Man communication for
	automation and real-time control.
The Charles	Devices Communicale avec a head of
Manager and the second	to perform tasks intelligently
0	Cecetures 1111 110
	ration NO cracase, sold offer the second of the second
	1- Haronomous Communication
dural con	- Devices talk to each other, automatically.
	9. Real-time Data Shaming
1.16	fast fransmission of data.
	" block top set water ables to
Will I MillER	3. Protocol Support
	- Uses MOTT, COAP, HTTP, etc.
1181	Took
	4. Efficiency whomatine making appointing in
	- Reduces human effort and error.
in properties.	ridate of a mestack i hospital of the primary is a series
o	Example in Just
	- In Smart homes: Motion Sensor detects movement
	-> informs smart light -> Light turns on automatically
1. 1. (f)	- In Smart health care, & Wedrable monitors patients
to the	heart beat -> , Sends data to cloctors system
	-> alerts if abnormalistic inventor about

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	사용하는 것이 되었다. 그런 사용하는 것이 되었다면 보고 있는 것이 되었다. 그런 사용하는 것이 되었다면 되었다면 보고 있다. 사용하는 것이 되었다면 보고 있는 것이 되었다면 보고 있다면 보고 있다.
043	Describe device and component integration for Ict-
	bused home automation System
Lilyegin	It was britished alboard or rockerily to the text
-77	In an IOT-based home: automation sqstem, multiple
	devices and components must be unterpreted for
45	smooth functioning without 191' Introduction to
10 7	
2.14:	Devices fir Components Useding Country abiroit
	· Sensors: - Motion, temperature, humidity, gas, smoke
. a)it	Actuators: - Smart lights, fans, smart locks, alarms.
	· Microcontrollers Microprocessors: Archino, Raspberry Pi, ESP32
	- Communication Modules: Wiffi, Bluetooth Zigbee
Caps For	Cloud Platform: Aws Tot, Blynk, Goggle firebase
4	. User Interfaci: Mobile Applyloice Assistance
	( d 2 . mar-suri ) . six ed 2 = (divito nano) .
2	Integration Process:
4.4	and the state of t
Step1:	Sensors detect environmental changes (motion detected,
	The femporature mised months in the state of the state of the
step2:	Data is sent to microcontroller via communication modules.
skp3:	Microcontroller processes data and sends it to the cloud
eld and	· for : Storage landysis : 31 " > orablast "
Stp G.	Cloud sends command back to actuators.
Steps:	Actuator's perform action (turn on AC switch off lights)
Step(:	User can monitor control through appear voice command
	for a cart with a first transfer of the contract of the contra
Contract way	( Latingal Coll of the state of the collection of the state of the sta

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0.5]	What are horizontal and Vertical IOT applications?
	and the first of the first of the
<del></del>	Tot applications are broadly classified unto Horizontal
Juill	
·	A large and companyers in the state of
9.	Horizontal Tot Applications minciplined thousand
	- Provide general-purpose Iot Solutions mable across
7,16	36 Madusties and yet many to relieve to 1 2 realists
311	- focus is on connectivity, cloud Storage, and device
12423,19	management is allow rought professions
	- (Example: wa, 11:12 ; gold of) neitosinumino).
	· cloud JOT platforms (Aus IOT, Azure IOT Hub).
	Data analytics platforms of the
	· Connectivity Services (Loraman, 5G)
	Lewis neithboroatal
2.	Vertical IoT Applications
· lasta it	Store Schools detect andisonmental change brusis d
	- Inclustry - specific or domain - specific solutions.
noducter	- Tailored to solve a particular sector is need.
lasse	1) -derample: This contrates the day day of the Managarity
V	· Healthcare: Remote patient monitoring, wearable
	step it lieut sonds common (winds actualors.
( rintil	Agriculture: Smart imigation systems
ambining	More of Home of Home automation and Security
	dystems
	Difference inshort
	1. Horizontal = Generic plantorm (foundation)

2. Mortical = Specific use case (industry-focused solutions)