Internet of Things (IoT) is an intermediate term used to refer to the interconnection of physical components with the ability to connect and exchange data without human interactiondue to the integration of software and electronic components. The interconnection via the internet of computing devices embedded in everyday objects enabling them to communicate with each other using the internet. The term IoT describes a network of objects in your home or office that have sensors and software that enables them to share data. They are usually traditionaleveryday objects such as vacuum cleanersair conditioners and thermostatsTV setsand refrigerators. Evolution of Io The IoT Equation Physical Object + ControllerSensor and Actuator + Internet = Internet-of-Things concepts close to Ambient Intelligence are electronic environments that are sensitive and responsive to the presence of people. Machine-to-Machine concepts refer to direct communication between devices using any communications channel including wired and wireless Iot Application Domains Digital Twins Each physical system has a digital simulation twin that can simulate real-time sensor data that enters to the physical system and generates recommendations to improve the performance at real time. IoT Communication Protocols Stack Local processing is sometimes overlooked This is the ideal schematic A lot of data that is pushed to the cloud is irrelevant Iot Enabling Technologies Wireless Sensor Network Cloud Computing Big Data Analytics Communication Protocol Embedded Systems IoTS Characteristics + Minimal human intervention during operation or configuration. Long battery lifetime as most of IoTI devices are battery-operated devices. IoTC 4ss Rule Any IoTG system should satisfy 4sc rule: SimpleSecureSmartScalable IoTB Challenges IoTD Levels & De Level- IoT systems are suitable for solutions based on wireless sensor networksin which the data involved is big and the analysis requirements are not computationally intensive. Level- independent nodes with cloud communication are suitable to solutions relying on wireless sensors networks. The centralized controller is aware of the status of all the end nodes and sends control commands to the nodes. The results are visualized

with the cloud-based application and the centralized Controller is known of the state of the system.