IDEATION PHASE

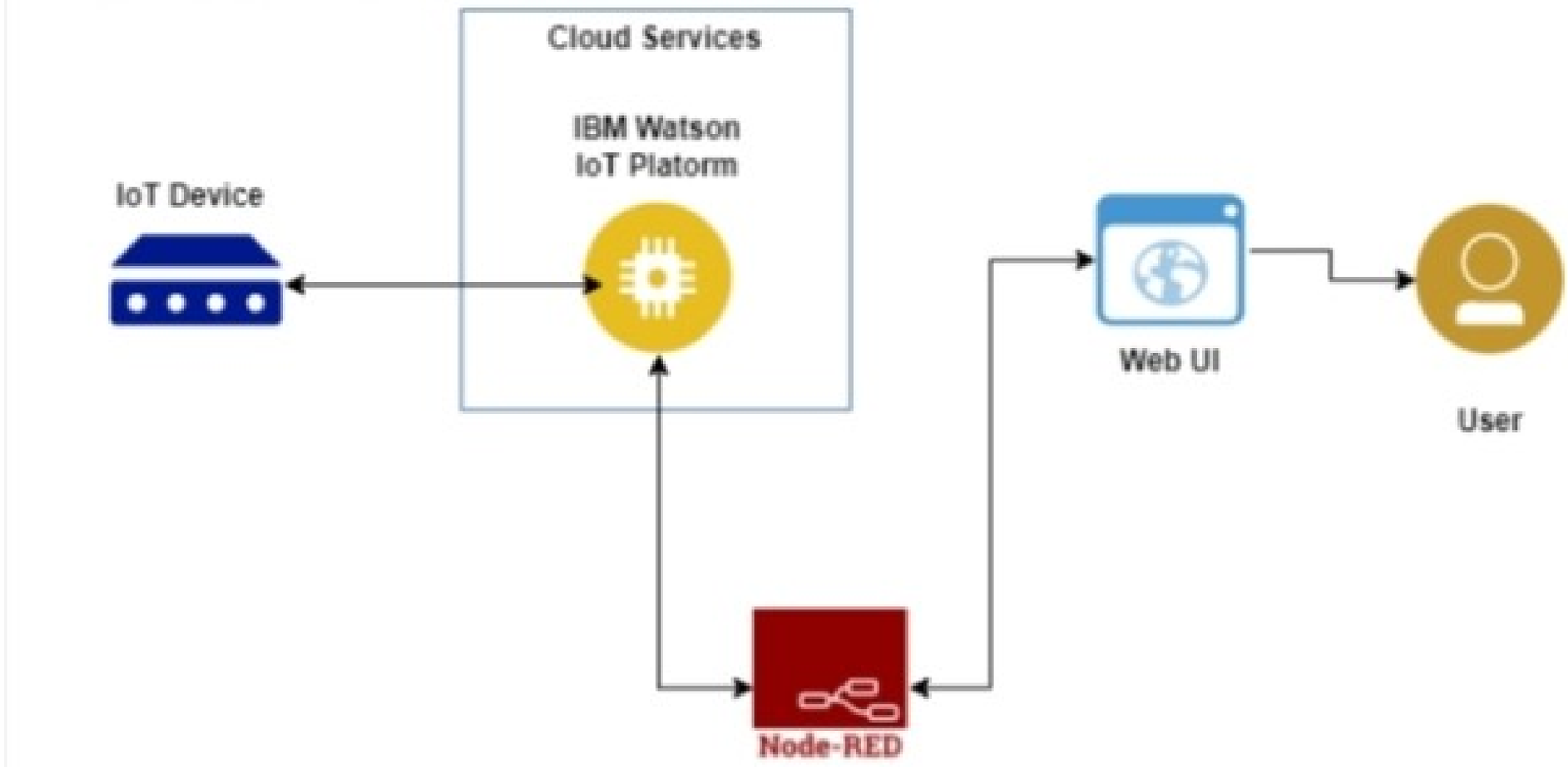
DEFINED PROBLEM

DATE	18.05.2023
TEAM ID	NM2023TMID14178
PROJECT TITLE	smart billing system for water suppliers
MAXIMUM MARKS	4 MARKS

OVERVIEW:

Nowadays several fill stations are set up across the cities to operate water tanker service delivering water to all the local households. Tankers get registered and a card is issued for the users which can be used for payments. They can also top-up their card through the mobile application. Each fill station is equipped with hand-held devices (based on the number of pumps in the fill station). These hand-held devices have the facility to read/write into RFID based smart cards as well as WIFI modem to communicate with the central server over the cloud. This data can then be viewed by the users on their respective mobile applications connected to the cloud.

Technical Architecture:



DEFINED PROBLEM

Some examples of billing issues include: statement errors, missing or misapplied payments or other credits, calculation errors on the bill, or unrecognized charges on a statement – all resulting from inaccurate understanding of the nature of the problem on behalf of the call center agent

Recurring Billing Issues: 7 Common Challenges and How to Overcome Them

Unscalable Billing Infrastructure.

Loss of Revenue Due to Failed Payments.

Growing Complexity of the Invoicing Process.

Insufficient Operational Rigour.

Increasing Difficulty in Recognizing Revenue.

Lack of Third-Party Integrations.

WORKING

This AWBS consists of a digital water flow rate sensor which is used to calculate amount of water consumed more accurately than the prevailing analog meters. Based on

the amount of water consumed, bill is generated at the end of every month and an SMS is sent to the registered mobile number of the consumer.

COMPONENTS:

NodeMCU (ESP8266), water flow sensor (yf 201), OLED(. 09 12C), ThingSpeak could service

NodeMCU

NodeMCU is a low-cost open source IoT platform. It initially included firmware which runs on the ESP8266 Wi-Fi SoC from Espressif Systems, and hardware which was based on the ESP-12 module. Later, support for the ESP32 32-bit MCU was added

Water FlowSensor

The Water Flow Sensor for Flow Rate & Volume Measurement using Arduino works on the principle of the Hall effect. According to the Hall effect, a voltage difference is induced in a conductor transverse to the electric current and the magnetic field perpendicular to it.

OLED

a light-emitting diode containing thin flexible sheets of an organic electroluminescent material, used mainly in digital display screens

PROJECT OBJECTIVES

By the end of the project, you will:

Gain knowledge of Watson IoT Platform

Explore Wokwi Platform

Explore the devices and its simulation of the wokwi platform.

Explore the libraries present in Wokwi.

Will be able to code to connect the devices across the cloud platform.

Connecting the devices on wokwi to the IoT platform device to exchange the sensor data.

Gain knowledge of creating devices and platforms using IBM Watson IoT Platform.

Gain knowledge of web application development through nodered.