

School of Computer, Information and Mathematical Sciences

8

Department of Computer Science and Engineering

One Day Workshop on

Innovative with AWS from chatbots to IoT Mastery

Date: 08 August 2024

Time: 9:00am-3:30pm

Venue: IoT lab , III Floor, CSE Block, B.S. Abdur Rahman Crescent Institute

of Science and Technology



School of Computer, Information and Mathematical Sciences &

Department of Computer Science and Engineering

Event Report

Name of the Event: "One Day Workshop on Innovative with AWS from chatbots to IoT Mastery (Hands-on Practice)"

Date: 08 August 2024

Venue: IoT Lab, III Floor, CSE Block, B.S. Abdur Rahman Crescent Institute of Science and Technology

Total Number of Participants: 30

The School of Computer, Information and Mathematical Sciences and the Department of Computer Science and Engineering at B.S. Abdur Rahman Crescent Institute of Science and Technology jointly organized a one-day workshop titled "Innovative with AWS from chatbots to IoT Mastery (Hands-on Practice)" on August 08, 2024. This interactive workshop was attended by 30 participants, including faculty members, and undergraduate students. It provided a practical, immersive learning experience aimed at equipping attendees with essential skills in IoT and cloud-based services.

The session was led by students of BSA crescent institute of science and technology (**Oviya Janathranan,Syed Ahmed,Sudharsan Vishwa,Zafeera,Sharon Devanand**) The workshop was convened by **Dr. Sharmila Sankar** (Dean, SCIMS) and **Dr. Aisha Banu W** (Head, Department of CSE), with active support from faculty coordinators **Dr. V. Muthupriya** (Assistant Professor (Sel. Gr.)), **Dr. A. Radhika** (Assistant Professor, CSE), **Mrs. A .Radhika,Mrs. T. Valliammai** (Assistant Professor, CSE)

Objectives:

The primary goals of the workshop were:

- **1. Introduce AWS Tools and Services:** Provide an overview of AWS services such as IoT Core, Lambda, and Amazon Lex, and their applications in chatbot and IoT development.
- **2. Hands-On Learning:** Enable participants to design, build, and deploy real-world IoT systems and chatbots using AWS.
- **3. Skill Development:** Equip attendees with practical skills in cloud computing, serverless architecture, and IoT data analytics.

- **4. Promote Innovation:** Encourage participants to explore creative solutions leveraging AI, IoT, and cloud technologies.
- **5. Foster Collaboration:** Create a platform for students, faculty, and professionals to network and share knowledge on cutting-edge technologies.
- **6. Bridge Theory and Practice:** Demonstrate the integration of cloud-based services with IoT devices for scalable and secure solutions.

Event Brochure



Workshop Agenda

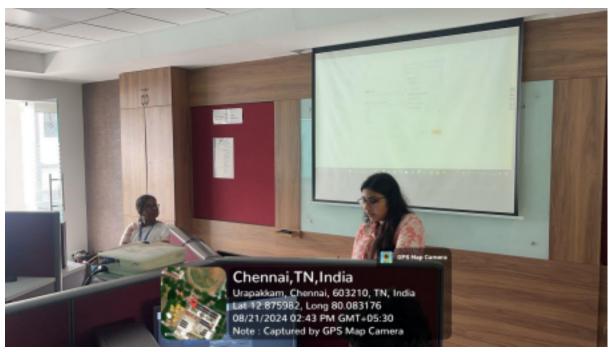
The workshop was structured into interactive sessions and hands-on exercises, covering the following topics:

Agenda Schedule

- 1. 9:00 am 9:15 am: Registration
- 2. 9:15 am 9:30 am: Quirath & Welcome Address
- 3. 9:30 am 11:00 am: Session 1-[Introduction to Cloud Computing & AWS, Basic AWS

Services(Rekognition,S3 Bucket)]

- 4. 11:00 am 11:15 am: Break
- 5. 11:15 am 12.45 am: Session 2-[Introduction into IoT and Hands-on Session on IoT Services in AWS]
- 6. 12:45 pm 1:30 pm: Lunch Break
- 7. 1:30 pm 3:10 pm: Session 3-[Hands-on Session on Intelligent Chatbot Creation] 8. 3:15 pm
- 3:30 pm: Q/A Session, Quiz Session 3:30 pm: Closing Remarks and Vote of Thanks



Workshop Outcomes

The workshop achieved its intended objectives, and participants gained a solid understanding of:

1. Building Conversational AI: Chatbot Development on AWS

• Overview of AWS services for chatbot development (Amazon Lex, AWS Lambda). •

Designing conversational flows and integrating Natural Language Understanding (NLU). •

Deploying and testing chatbots with real-world use cases.

• Integration of chatbots into web or mobile applications.

2. IoT System Design: Harnessing AWS IoT Core and Services

- Introduction to AWS IoT Core and its role in IoT device connectivity.
- Device provisioning and secure communication with MQTT protocol.
- End-to-end IoT solution design from device to cloud.
- Use case implementation: Smart home or environmental monitoring.

3.Scalable Solutions: AWS Lambda and Serverless Architectures • Basics

of serverless architecture and benefits of AWS Lambda. • Building

event-driven applications for IoT and chatbot integration. • Hands-on: Writing and deploying a Lambda function.

• Cost optimization and scaling with serverless.

4. Data Streaming and Analytics with AWS IoT Analytics

- Streaming data from IoT devices to AWS IoT Analytics.
- Transforming, filtering, and enriching IoT data streams.
- Visualizing insights using Amazon QuickSight dashboards. •

Real-world use case: IoT data monitoring and predictive analytics.

5.Integrating AI with IoT: AWS Machine Learning for Intelligent Devices

- Overview of AWS SageMaker for machine learning.
 - Training models to analyze IoT data (e.g., anomaly detection). Deploying trained models on IoT edge devices using AWS IoT Greengrass. Examples: Predictive maintenance and energy efficiency.

6. Real-Time Data Processing for IoT Applications Using AWS •

Leveraging AWS Kinesis for real-time IoT data ingestion.

- Processing data streams using AWS Lambda and AWS Glue.
 Building applications for live tracking and alerting.
- Use case: Real-time location tracking for logistics.

7. Securing IoT Deployments: Best Practices with AWS Tools •

Implementing secure device authentication with AWS IoT Core. • Data encryption at rest and in transit using AWS KMS.

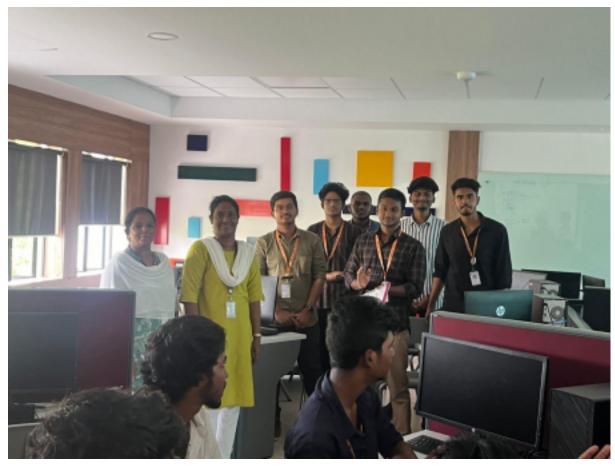
- Monitoring IoT deployments with AWS CloudWatch.
- Best practices for compliance and risk mitigation in IoT systems. 10.

Hands-On with Alexa Skills: Bringing Voice to IoT Systems • Introduction to Alexa Skills Kit (ASK) and its integration with AWS. • Building custom Alexa skills to control IoT devices.

• Connecting Alexa with AWS IoT Core for voice-enabled IoT systems. • Hands-on: Smart home automation using Alexa and IoT.



Workshop Participants



Feedback

The "Innovate with AWS: From Chatbots to IoT Mastery" workshop was well-received for its hands on approach, clear guidance, and relevant content on AWS tools like IoT Core, Lambda, and Lex. Participants appreciated the real-world applications and collaborative environment. However, some suggested better time management, pre-requisite materials for beginners, and post-workshop resources for continued learning. Overall, the workshop effectively introduced cloud and IoT concepts, inspiring participants to explore AWS further.

Faculty Coordinators

- Dr . V . Muthupriya (Assistant Professor (Sel. Gr.))
- Dr . A .Radhika (Assistant Professor (Sel. Gr.))
- Dr . I. Karthiga (Assistant Professor, CSE)
- Mrs .T. Valliammai (Assistant Professor, CSE)
- Mrs .Hemalatha (Assistant Professor, CSE)