CelerSMS AT Emulator Assignment - Task 8: Custom AT Commands

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Task 8: Custom AT Commands (Theoretical)

Since the CelerSMS AT emulator supports only limited standard GSM commands, this task focuses on proposing custom AT commands inspired by real Cavli modules. For this, the Cavli **CQM220** module is considered.

The CQM220 supports LTE-M, NB-IoT, GNSS, embedded eSIM, and MQTT communication. Based on these features, three theoretical custom AT commands are proposed below.

1. AT+GNSSLOC? — Get GNSS Location

Purpose: Returns current GNSS-based latitude, longitude, and UTC timestamp.
Command:

```
AT+GNSSLOC?
```

Expected Response:

```
+GNSSLOC: 09.9706,N,76.2999,E,2025-07-15T14:21:10Z
OK
```

2. AT+ESIMSTAT? — Check eSIM Profile Status

Purpose: Reports the status of the embedded eSIM profile and its ID.
Command:

```
AT+ESIMSTAT?
```

Expected Response:

```
+ESIMSTAT: "ACTIVE","CAVLI_OP01"
OK
```

3. AT+MQTTPUB="topic","data" — Publish MQTT Payload

Purpose: Publishes telemetry data to a remote MQTT broker topic.
Command:

```
AT+MQTTPUB="iot/data","{\"temp\":26.5,\"hum\":82}"
```

Expected Response:

```
+MQTTPUB: "iot/data","{\"temp\":26.5,\"hum\":82}"
SEND OK
```

Summary Table

Command	Purpose	Sample Response
AT+GNSSLOC?	Get GNSS location (lat, lon, UTC)	+GNSSLOC: 09.9706,N,76.2999,E,...
AT+ESIMSTAT?	Check eSIM profile status	+ESIMSTAT: "ACTIVE","CAVLI_OP01"
AT+MQTTPUB="topic","data"	Send MQTT payload to broker	SEND OK

Conclusion

These proposed AT commands reflect real-world extensions needed for advanced IoT applications like asset tracking, SIM provisioning, and cloud telemetry. While these are not supported in the CelerSMS emulator, they demonstrate how Cavli modules like the CQM220 can be leveraged with custom AT firmware for full-stack IoT deployments.