Individual Weekly Report

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Team: Bray IIoT Smart Solutions
Date: 04/14/2025

Current Status

1. What did you **personally** work on this past week?

Task	Status	Time Spent
Implementing MQTT client upgrades	Completed	2hr
Integrating the hardware/firmware with software	Completed	3hr
Writing backend API calls	Completed	1hr
Debugging web-application after integration	Completed	3hr

Include **screenshots/graphics** to illustrate what you did this past week:

```python
def _on_message(client: mqtt.Client, userdata: Any, msg: MQTTMessage):
    sensor_events: Dict[str, Dict[str, Union[SensorEvent, AuxSensorEvent]]] = userdata.get("sensor_events")
    on_heartbeat_packet: Callable | None = userdata.get("on_heartbeat_packet")
    on_data_packet: Callable | None = userdata.get("on_data_packet")
    on_event_summary_packet: Callable | None = userdata.get("on_event_summary_packet")
    on_co2_packet: Callable | None = userdata.get("on_co2_packet")

    payload: bytes = msg.payload
    topic: str = msg.topic

    _, devEUI, _, port, *_ = topic.strip().split("/")
    logging.info(f">> RECEIVED MESSAGE ON PORT {port}")

    # Add a new sensor event if it doesn't exist or get the existing one. Start with an empty current event
    if sensor_events.get(devEUI) is None:
        sensor_events[devEUI] = {
            "old_event": None,
            "current_event": AuxSensorEvent() if port == "15" else SensorEvent()
        }
    # Parse data for the current event
    event = sensor_events[devEUI]
    event["current_event"].parse_from_data(topic, payload)
    # Execute callbacks
    if port == "12":
        logging.info(">> Executing on_heartbeat_packet")
        on_heartbeat_packet(event["current_event"]) if on_heartbeat_packet is not None else None
    elif port == "13":
        logging.info(">> Executing on_data_packet")
        on_data_packet(event["current_event"]) if on_data_packet is not None else None
    elif port == "14":
        logging.info(">> Executing on_event_summary_packet")
        on_event_summary_packet(event["current_event"], event["old_event"]) if on_event_summary_packet is not None else None
        event["old_event"] = event["current_event"]
        del event["current_event"]
        event["current_event"] = AuxSensorEvent()
```

```python
class AuxSensorEvent:
    """
    Data structure holding information on a sensor event. See the Smart Dev Comm documentation and `app.h` in firmware
    for packet structure breakdowns.
    """
    devEUI: str = None

    #CO2 sensor field
    co2_ppm: int = None

    #hardcoding the aux sensor data
    aux_sensor_id: int = 6

    def __init__(self):
        self.timestamp = None

    def parse_from_data(self, topic: str, data: bytes) -> None:
        """
        Attempts to interpret the data from a series of bytes.

        Args:
            topic (str): MQTT topic. Should follow the format `sensor/<devEUI>/port/<port>`.
            data (bytes): Data to be read.

        Raises:
            SyntaxError: Raised after loading data that has a different `devEUI` than previously read data.
            SyntaxError: Raised after reading data from an unrecognized port number (valid ports are only 15).
        """
```

2. What problems did you run into? What is your plan for them?
    Luckily, we did not run into any issues this week. We are essentially finished with the project and
    are doing clean up.

3. What is the current overall project status from your perspective?
    The project is seemingly completed at this point. We are still dealing with loose ends that could
    potentially be problematic.

4. How is your team functioning from your perspective?
    As the time gets closer to the due date, the team is working harder and more effectively. We
    have made incredible progress due to the whole team taking initiative and working together.

5. What new ideas did you have or skills did you develop this week?
    I developed new skills related to integration testing and MQTT.

6. Who was your most awesome team member this week and why?
    Aysen De La Cruz, I think Aysen is committing a lot of effort to this project that makes him a
    standout member of this team. He has been consistently working outside of class hours and
    making significant contributions by being persistent.

Plans for Next Week

What are you going to work on next week?
We need to finish up the final project report as well as finish some loose ends that are currently
looming over us. Otherwise, at this point we are very close to being finished.