Individual Weekly Report

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Team: Bray IIoT Smart Solution
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Current Status

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

Task	Status	Time Spent
Finished Development for the MQQT side of the project	Completed	8 Hrs

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

```
    # 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()
    elif port == "15":
        logging.info(">> Executing on_co2_packet")
        on_co2_packet(event["current_event"]) if on_co2_packet is not None else None
        del event["current_event"]
        event["current_event"] = SensorEvent()
```

```
# Real-time packet updates. Split up for future ease of alterations
def on_heartbeat_packet(sensor_event: SensorEvent):
    _conn.execute_query(queries.upsert_live_sensor_event, sensor_event, 0)

def on_data_packet(sensor_event: SensorEvent):
    _conn.execute_query(queries.upsert_live_sensor_event, sensor_event, 1)

def on_c02_packet(aux_sensor_event:AuxSensorEvent):
    _conn.execute_query(queries.add_aux_sensor_data, aux_sensor_event)

def on_event_summary_packet(sensor_event: SensorEvent, prev_sensor_event: SensorEvent):
    _conn.execute_query(queries.upsert_live_sensor_event, sensor_event, 2, prev_sensor_event)
```

```python
    def parse_from_co2_record(self, data: bytes) -> None:
        """
        Interprets byte data as a CO2 record.
        TODO: Adjust according to data packet length
        Args:
            data (bytes): Payload containing CO2 concentration (ppm)
        """
        logging.debug("Loading CO2 record...")
        if len(data) < 20:
            logging.warning("CO2 packet too short")
            return

        self.co2_ppm =  data[3:8].decode("utf-8")
        logging.info(f"Data as bytes: {data.hex()}")
        self.timestamp = datetime.now()
        logging.info(f"CO2 parsed: {self.co2_ppm} ppm")
```

```python
def add_aux_sensor_data(session, aux_sensor_event: AuxSensorEvent):
    """
    Adds a sensor event to the database. SensorEvent is initialized with default data.

    Args:
        session (_type_): Session object. See module header.
        sensor_event (SensorEvent): Event that will be added to database
    """
    logging.info("Attempting to add aux_sensor data")

    # Get Aux sensor ID to make sure it exists in database
    sensor_id = aux_sensor_event.aux_sensor_id

    # Check if the AuxSensor exists
    existing_sensor = session.get(AuxSensor, sensor_id)
    if existing_sensor is None:
        logging.info(f"AuxSensor with ID {sensor_id} not found. Creating new entry.")
        new_sensor = AuxSensor(id=sensor_id)
        session.add(new_sensor)
        session.flush()

    aux_sensor_data = AuxSensorData(
        aux_sensor_id = aux_sensor_event.aux_sensor_id,
        timestamp = aux_sensor_event.timestamp,
        value = aux_sensor_event.co2_ppm
    )

    # Add session to db (also adds other entities)
    session.add(aux_sensor_data)
```

2. What problems did you run into? What is your plan for them?

None, I was able to complete most of my expected contribution for the project and even more.

3. What is the current overall project status from your perspective?

I'd say it is done. At this point, we are just putting a bow on everything.

4. How is your team functioning from your perspective?

Our team is functioning well, we've been doing well, and have somehow found a way to get to the finish line.

5. What new ideas did you have or skills did you develop this week?

I learned how to edit a MQQT client and make changes to make it work for a new sensor, and read in data on a port, and then put that data in a database.

6. Who was your most awesome team member this week and why?

My most awesome teammate was Josh. When it came to doing the gritty work of the project, it was nice to have someone to ask questions to. He was reliable and responded fast.

Plans for Next Week

What are you going to work on this next week?

Im going to start helping on the reports and helping our team get ready for the upcoming capstone presentations.