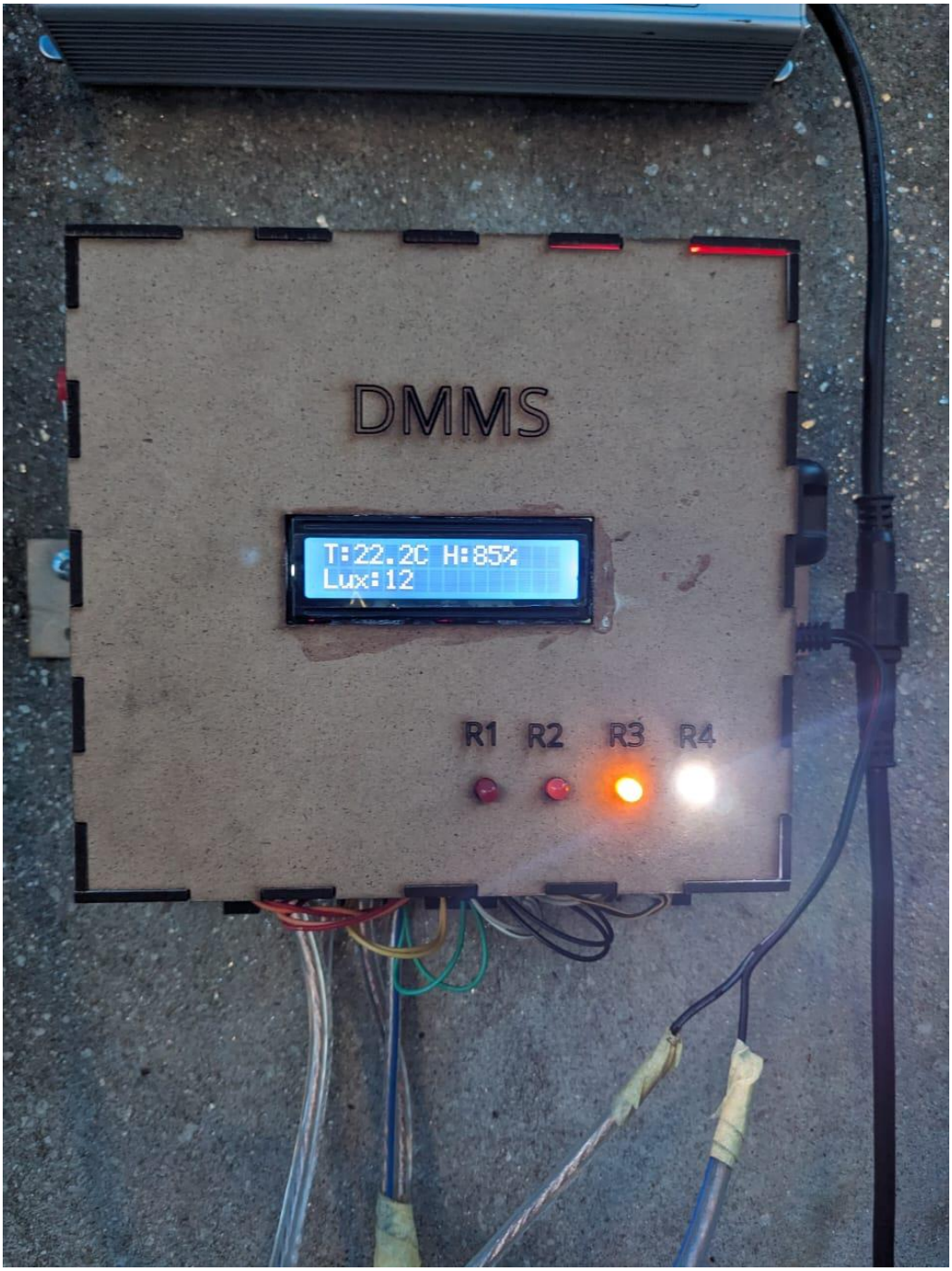
DAMSON MUSHROOM FARM LTD

DAMSON MUSHROOM MONITORING SYSTEM



DMMS Technology Training

Smart monitoring for better yields

The DAMSON MUSHROOM MONITORING SYSTEM (DMMS) helps the farm see room conditions and crop trends more consistently. Monitoring data can support timely decisions, better records, and learning across batches. Sensors do not replace crop inspection, trained judgment, or approved production procedures. This guide teaches staff a reliable routine for checking data, responding to alerts, and reporting system problems. It is written for general monitoring workflows and does not assume a particular DMMS app, sensor model, or control setup.

1. What DMMS monitoring is for

A monitoring system collects and displays measurements from locations such as growing or incubation rooms. Depending on the equipment installed, it may show temperature, relative humidity, carbon dioxide, or other measurements over time. It may also send alerts or connect to equipment controls. Use only the features enabled and approved for your farm.

- Use readings to understand room conditions and changes, not as a guarantee of crop performance or yield.
- Compare data with the approved target range for the species, strain, production stage, and room. Targets are farm-specific and must come from the production procedure.
- Link each reading to the correct room, sensor, batch, and time so staff can interpret it correctly.

2. Start each shift with a system check

1. Sign in using your assigned account; do not share passwords or bypass access controls.
2. Confirm the dashboard shows the correct room and current date and time.
3. Check that expected sensors are online and reporting recent readings. Note missing, frozen, or implausible values.
4. Review active alerts, recent changes, and the handover notes from the previous shift.
5. Walk the room when required. Check that the crop, airflow, equipment, and visible conditions make sense alongside the data.

3. Read trends as well as current values

A single reading is only a snapshot. Review the trend over the period relevant to the crop and compare it with other readings, room observations, and past batches. Sudden jumps, repeated cycling, long gaps, and values that do not fit the room may indicate a real condition change, sensor placement issue, communication fault, or sensor problem.

- Check the measurement, unit, room, timestamp, and sensor name before drawing a conclusion.
- Look for duration and pattern: how far the value moved, how long it stayed there, and whether it repeated.
- Compare with a second approved instrument or manual check when the value appears inconsistent, following the farm procedure.
- Record the observation and relevant context, such as door opening, loading, maintenance, or a change in crop stage.

4. Respond to alerts safely

An alert is a prompt to investigate, not automatic proof of a fault. Follow the farm’s approved alert limits, escalation contacts, and authority for changing room settings.

6. Acknowledge or assign the alert using the system procedure so the team knows it is being handled.

7. Verify the room, sensor, time, value, and duration. Check whether other sensors or manual observations support it.
8. Inspect the room and relevant equipment if trained and safe to do so. Follow site access and worker safety rules.
9. Notify the responsible supervisor when the condition is outside the approved limit, persists, or affects crop or worker safety.
10. Only staff authorized by the farm may change set-points or equipment settings. Never disable an alert to clear a warning without resolving or documenting the cause.
11. Record what was found, action taken, who authorized it, and whether the condition returned to range.

5. If the system or connection fails

A blank dashboard does not confirm that the room is safe or stable. Use the farm's backup monitoring procedure until the system is restored.

- Notify the supervisor and record when the interruption began, which room or devices are affected, and any visible issue.
- Use designated backup instruments and manual checks at the frequency in the contingency procedure.
- Do not reset, unplug, relocate, or repair equipment unless trained and authorized. Protect cables and sensors from water, cleaning chemicals, impact, and unauthorized adjustment.
- When service returns, check that readings are current and plausible, note any data gaps, and reconcile manual records where required.

6. Protect sensor quality

Monitoring is only useful when sensors are installed, maintained, and checked appropriately. Sensor location matters: airflow, direct mist, heat sources, walls, doors, and crop height can influence a measurement. Do not move a sensor to make a reading look better.

- Keep sensors in their assigned, labelled positions and keep vents or sensing surfaces clear as directed by the equipment instructions.
- Follow the farm's schedule for calibration, comparison checks, battery changes, cleaning, and replacement.
- Record device ID, room, inspection date, check result, maintenance, and person responsible.
- Report physical damage, water ingress, corrosion, loose wiring, unusual readings, or repeated dropouts.

7. Use data to improve production

At batch reviews, compare room trends with crop observations and outcomes such as timing, quality, yield, and losses. Look for patterns across comparable batches. Account for changes in strain, substrate, room loading, procedures, and weather before attributing an outcome to one sensor reading or system adjustment. Use the findings to propose a controlled improvement through the farm's normal approval process.

- Compare like with like: same species or strain, stage, room conditions, and recording period where possible.
- Review whether readings were complete and devices were operating correctly.
- Document the question, evidence, proposed change, approval, and result.
- Update the approved procedure only after the responsible lead reviews the evidence.

Daily DMMS checklist

- ☐ Correct room and time selected
- ☐ Expected sensors online with recent readings
- ☐ Alerts and handover notes reviewed
- ☐ Dashboard trends checked against crop and room observations

- ☐ Out-of-range or implausible readings investigated and escalated
- ☐ Actions, manual checks, and data gaps recorded
- ☐ System or sensor issues reported to the responsible person

Training and responsibility

Staff should be trained on the actual DMMS interface, room names, alert limits, escalation contacts, backup instruments, and who may authorize environmental changes. New users should practice reading trends and recording an alert under supervision before working independently. Keep a current list of authorized users and remove access when roles change.

Further reading

- Intelligent Control of Mushroom Growing Conditions Using an Electronic System for Monitoring and Maintaining Environmental Parameters, Applied Sciences — https://www.mdpi.com/2076-3417/12/24/13040
- An Integrated IoT Sensor-Camera System toward Leveraging Edge Computing for Smart Greenhouse Mushroom Cultivation, Agriculture — https://www.mdpi.com/2077-0472/14/3/489

This training guide describes general monitoring practices. Follow the installed DMMS instructions, DAMSON MUSHROOM FARM LTD procedures, equipment safety directions, and the approved crop-specific production limits.