# W3: EDD Element A-M Interview Experts

## Interview Information

Meeting Date: 1/19/26 Meeting Location: Virtual Meet

**Team Members Attending: Matthew Jeide**

**Problem Statement: Commercially available STEM toys designed for children—particularly those marketed towards girls—often fail to sustain inquiry-driven engagement through narrower technical content, stereotyped themes, and uneven value relative to gender-neutral alternatives, which can dampen girls' early interest in STEM.**

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| First Name Last Name | Jasmine Shields |
| Field of Study | Software Engineering |
| Consultant WorkSite/Role | Software Engineering student at UC Irvine |
| Contact Information | Phone: n/a Email: jas.shields06@gmail.com |
| Date Scheduled and Time | January 19th, 2026 at 8:30am PST |
| Type of Interview* | Virtual meet |
| Questions and Response Summary | 1. What programming language and toolchain should be used for the ESP32 so the system remains realistic, stable, and maintainable for students?<br>2. What is the most practical way to implement multiple operating modes (manual drive, AGV/line following, autonomous obstacle avoidance) without making the software overly complex?<br>3. For an AGV or line-following mode, what sensor approach is most effective, and what common implementation issues should be expected?<br>4. How can battery limitations be managed while balancing runtime, motor power, and added sensors without increasing cost excessively?<br>5. What safety or engineering concerns exist when charging and powering motors from a small battery system, including restrictions on use while charging?<br>6. Is adding Bluetooth or Wi-Fi remote control functionality worth the added software and debugging complexity for the scope of this project? |
| Voice of the **Expert** | The key takeaway from the expert interview was the importance of stability, predictability, and authenticity in programming. Jasmine highlighted issues with block-based coding and supported the decision to use a standard programming language and toolchain. This directly supports |

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| | MOJO's goal of creating a STEM product that reflects real engineering practices rather than simplified or unreliable systems. |
| Evident of the Interview | https://www.youtube.com/watch?v=eeQGoxqZtss |

Notes: Meeting #

Jasmine emphasized that the product should use a real programming environment, rather than unreliable block-based coding, so that behavior is consistent and learning outcomes are authentic. When the team discussed using C++ on the ESP32, the response was positive, as this approach aligns with industry-standard embedded systems practices.

She also noted that features such as line following and AGV behavior are not purely software-based and must be supported by appropriate hardware and sensor integration. This reinforced the importance of designing the system so that sensor-based behaviors are understandable and transparent to students.

Obstacles Jasmine foresaw:

- Some planned features, such as AGV or line following, depend heavily on hardware and sensor selection rather than just software.
- Block-based programming environments were identified as inconsistent and unpredictable, which can lead to frustration and unreliable results in student projects.
- Battery capacity presents a limitation, especially as additional sensors and motors increase power consumption.
- Charging safety constraints, including restrictions on operating the system while charging, introduce design tradeoffs for power delivery and motor performance.
- Features such as Bluetooth or Wi-Fi remote control add significant complexity and may exceed the practical scope of the project.

*Proof of video call: Must ask for permission to take a screenshot of the screen.