1. ESP32 Breathing Light: Bringing Life to LED with AI.  
   *Students must write a complete PRD for controlling LED breathing rhythm, understanding I/O, constraints, and acceptance criteria.*

| **Section** | **Description** |
| --- | --- |
| **🧭 Product Goal** | *State in one sentence what problem you want to solve and who the user is.* |
| **🔌 I/O Definition** | *Clearly specify the input (type, source) and output (format, range).* |
| **⚙️ Constraints** | *Specify what is not allowed (e.g., external libraries, APIs) and the environment where it must run.* |
| **✅ Acceptance Criteria** | *Write 3–5 testable conditions (items that can be checked as Pass/Fail).* |
| **💬 Prompt Writing Area** | *Combine the above four sections into one complete structured prompt for the AI.* |
| **🔁 Feedback & Revision** | *When the AI output is incorrect, students must describe how they would revise the prompt.* |

1. ESP32 Traffic Light

| **Section** | **Description** |
| --- | --- |
| **🧭 Product Goal** | *State in one sentence what problem you want to solve and who the user is.* |
| **🔌 I/O Definition** | *Clearly specify the input (type, source) and output (format, range).* |
| **⚙️ Constraints** | *Specify what is not allowed (e.g., external libraries, APIs) and the environment where it must run.* |
| **✅ Acceptance Criteria** | *Write 3–5 testable conditions (items that can be checked as Pass/Fail).* |
| **💬 Prompt Writing Area** | *Combine the above four sections into one complete structured prompt for the AI.* |
| **🔁 Feedback & Revision** | *When the AI output is incorrect, students must describe how they would revise the prompt.* |

1. ESP32 answer machine

| Section | Description |
| --- | --- |
| **🧭 Product Goal** | *State in one sentence what problem you want to solve and who the user is.* |
| **🔌 I/O Definition** | *Clearly specify the input (type, source) and output (format, range).* |
| **⚙️ Constraints** | *Specify what is not allowed (e.g., external libraries, APIs) and the environment where it must run.* |
| **✅ Acceptance Criteria** | *Write 3–5 testable conditions (items that can be checked as Pass/Fail).* |
| **💬 Prompt Writing Area** | *Combine the above four sections into one complete structured prompt for the AI.* |
| **🔁 Feedback & Revision** | *When the AI output is incorrect, students must describe how they would revise the prompt.* |