# Conceptual Design

# Circuit Diagram Evaluation

Design 1

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| --- | --- |
| Advantages | Disadvantages |
| Does not need power drawn externally. | Battery needs to be changed occasionally |
| Highly Modular due to lack of data lines between sensor and display modules. | Usage of RF to communicate has risk of data loss |
| Alarm coupled with sensor automatically indicates where the conditions have been violated. | Alarm hidden by the propagator cover |

Design 2

|  |  |
| --- | --- |
| Advantages | Disadvantages |
| Does not need power drawn externally. | Battery needs to be changed occasionally |
| Highly Modular due to lack of data lines between sensor and display modules. | Usage of RF to communicate has risk of data loss |
| Alarm integrated into the display module. Increases modularity, simplicity and portability | Additional Information needs to be displayed to indicate for which sensor the alarm is ringing for |
| Alarm externally visible to the user |  |

Design 3

|  |  |
| --- | --- |
| Advantages | Disadvantages |
| Battery changes are not necessary | Power needs to be drawn from an external source |
| Alarm externally visible to the user | Data and power lines reduce the modularity and portability |
| Alarm integrated into the display module. Increases modularity, simplicity and portability | Additional Information needs to be displayed to indicate for which sensor the alarm is ringing for |
|  | Lines may get damaged due to water and other weather conditions, affecting power and data transmission |

Considering all advantages and disadvantages, Circuit diagram Design 2 was selected for the preliminary design.