Project Proposal

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Within this project, our aim is to develop and put into action a Machine Learning application for solar panel assessment, using platforms like Google Colab. Our approach involves data collection through original research focused on property attributes, eco-friendliness, expenses, available grants, eligibility criteria, installation duration, and monthly electricity consumption in kWh. The objective is to determine whether the installation of solar panels proves to be a financially and environmentally viable solution for individual households, particularly in the context of prevailing economic inflation, as well as the current environmental concern. Therefore, our solar panel machine learning may solve issues on the “No poverty”, “Affordable and clean energy”, “climate action”, “sustainable cities and communities” on SDG’s the 17 goals.

Up to this point, we've constructed a Bayesian Network by delineating the variables within our system. We've assessed the potential impact of our system on individuals and established certain assumptions. Following validation, we've contemplated these assumptions and explored various viewpoints. We've also engaged in scenario analysis, taken well-informed measures after considering all these elements, produced an improved iteration of our Bayesian Network Diagram and finally refined the final Byesian Network Diagram into refined columns, see the picture below.

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| **Draw the variables in your system in the format of a Bayesian Network**  1. Draw the node you are trying to optimise in your system 2. Draw each node that will influence this dependent variable 3. Draw edges between nodes that influence each other 4. Calculate percentages of probabilities for each node (should add up to 100%)   A notebook with writing on it  Description automatically generated **What \*effect\* does your system have?** **On individuals? Cost saving, make individuals aware of environmental issues, providing self generated reliable long-term investment, can be expensive at the start, that can be used in case of an emergency such as earthquakes and when supply of electricity stops.****On society?** Good for environment as of recent environmental issues and each country is trying to shift energy sources to the natural ones. |

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### **2. Identify Assumptions**

**What assumptions did you make in designing your AI system?**

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| 1. Combined efficiency of the whole system  2. The natural generation of the electricity- peak times etc…  3. Associated cost to implement it and & the cost for maintaining the system  4. Time taken to implement the system in the house, and in the business  5. Eligibility of the system  6. |

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### **3. Validate Assumptions**

**How could you check whether these assumptions are true?**

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| 1. Efficiency- Potential surveys from users who have solar panels/contact different solar panel companies.  2. Initial research of how it works and overall and the benefits & drawbacks associated with it.  3. Onsite structure observation of the system being installed & length of time taken for it to be up and running.  4. the length of time system will last  5.  6. |

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### **4. Reflect on New Assumptions**

**What new insights have you gained by identifying and validating your assumptions?**

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| 1. overall initial thoughts may not have been developed to the needs of the user.  2. can be more expensive  3. may needs to pass all the criteria to implement the system to the house  4. may involve in further disadvantages and advantages  5.  6 |

### **5. Consider Different Perspectives**

**How does your IoT system design, ideas & actions look from Multiple Perspectives e.g. perspective people of different ages, different socio-economic backgrounds, different genders, different types of business people, different types of investors, different nationalities, differently abled people etc?**

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| 1. may attract working class or higher class, may not for live as you go type of personality as it can be expensive to implement and maintain.  2. the whole system can be difficult for elderly people or system vulnerable people to understand.  3.  4.  5.  6 |

### **6. Imagine What-if Scenarios**

**Can you reimagine your AI system, or the environments and people using, it to unlock new creative possibilities? What do you imagine could be possible in the future?**

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| 1. everyone will have reliable source of energy  2. people will have environmentally friendly source of energy  3. people will be influencing each other to have environmentally friendly products/services  4. can influence people to buy electric cars.  5.  6 |

### **7. Take Informed Action**

**Having gone through this Critical Analysis exercise, what would you change about your system and why?**

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| 1. make it eligible for everyone, ex) houses without roofs  2. make it user friendly, as it can be difficult for some people to understand the system.  3. focus on long term benefits rather than focusing on the fact that it can be expensive at the start of the implementation.  4. encourage change to solar panel.  5.  6 |

### **8. Draw a refined version of your BN Diagram from Step 1 - taking into account your Critical Analysis in Steps 2-7**

1. Draw the node you are trying to optimise in your system
2. Draw each node that will influence this dependent variable
3. Draw edges between nodes that influence each other
4. Calculate percentages of probabilities for each node (should add up to 100%)

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