Things to include:

To do before next meeting (Tuesday 8-9)

* Stakeholders follow up (Piazza + stakeholder questions): Tabitha
* Possible solutions research
  + Drone method Edwin
  + Tracker method? Arielle
  + Scanner/tagging sheep
  + Sheep facial recognition???
* Proposal write-up draft:
  + Opportunity Statement/problem statements(Provide a brief overview of the situation/context and the stakeholders.): Tabitha
  + Outline design requirements Ethan
  + Framing/rescoping (Arielle)
  + Value proposition:
    - Research: UN SDGs/Strategyzer (Emre)
      * Sustainability/green energy/reusability
      * Where do we source the materials from?
    - Research: Design for Durability: Functionally, the solution should last long (maintenance should be easy etc.) (Arielle)
    - Research: Equity:
      * Ease of learning
      * Affordability: Tabitha
* Non-functionality research (stakeholder, the country, their culture, how they graze sheep... etc.) (everyone)

1. Opportunity Statement:
   1. Frame the opportunity from the perspective of stakeholder needs.
   2. State the team’s value proposition, which relates to the stakeholder needs.
   3. Outline design-agnostic requirements that any solution would need to fulfill (i.e., define   
      what it means for a solution to provide value in relation to the context and stakeholder   
      needs).
2. Background and Design Goals
   1. This section provides the reader with relevant background for your opportunity context. As you   
      want to demonstrate how the opportunity context will frame your design goals, your team   
      should consider the following:
   2. 1. Understanding broadly the stakeholders and the context – Who is affected by the   
      opportunity context and how? Where are they situated? What is their lived experience   
      and what factors (societal, political, etc.) affect this? What are different forms of value   
      that meet stakeholders’ needs?
   3. 2. Defining the value proposition and scope – What are the limits to what you can do (and   
      not do)? Of the potential forms of value identified, what value proposition are you   
      focusing on and why? How does this value connect to the UN SDGs that are   
      relevant/important to your context?
   4. 3. Describing the service environment within your scope – What is the situation in which a   
      design that supports your value proposition must work?
   5. 4. Researching and analyzing how other people have generated, or attempted to generate,   
      the value you propose to deliver in your context. What have others done to provide   
      solutions? What reference designs are available and how well did they work? Does any   
      engineering design literature show there are opportunities to improve upon or leverage   
      previous approaches?
   6. 5. Defining design goals in the form of requirements – what are the high-level objectives   
      that any solution must meet? How might you go about verifying and validating any   
      design to meet your criteria?

Main problem/opportunity:

* Track the animals and find them when they are lost
* Cost effective

“The livestock owners would benefit from a cost-effective solution to track their animals and find them when lost. Alex indicated that looking for lost sheep in different homesteads is a painstaking task.”

Prevent sheep from wandering or track the sheep once they are lost?

Detailed Problem Statements:

1. Mixing up problem
   1. They feed on one communal area close to the dam
   2. Missed sheep went to other homesteads
   3. 5km radius
   4. No cars
2. Sheep wander around 1-2 km from their homestead themselves
   1. Wander off in a different directions/falls in a ditch
   2. 1-2km radius
   3. There are many sheep in the flock
3. Every day the shepherds let out their sheep at 9am (so they come back at night and have to be identified daily)
   1. Relationship between owners and shepherds are precarious -> Tendency of not showing up to work without notice
      1. Due to being underpaid
   2. Sheep mix together in the morning to feed on communal land
4. Results of wandering sheep:
   1. Went to give birth
   2. Attacked by stray dogs
5. Sheep number: 120-150 sheep with some goats
6. The design should be for all the farmers in the area (not just 1 farmer)
7. They do not have the car to find from every home
8. Life span of the sheep: 7 years, male sheep are sold within 2 years
9. Both shepherds and landowners have mobile phones and access to the internet.
10. Geography: Mathatha, South Africa (more research on this)
    1. No mountains, only hills
    2. There are houses, homesteads

Rescope: break down the tracking problem into two problems

* Differentiating the sheep
* Sheep wander off alone
* Preventive method?

Tracking the sheep (not preventing):

* Exact locations of the sheep
  + Accurateness (individual sheep tracking)
* Distinguish sheep between two different sheep groups
* They mentioned GPS?
* Track each individual sheep (figure out a technical method to reduce the cost)
* The role of shepherd?
* Track the old sheep (because they usually stick together)
* Drones

Values for the stakeholder(more specific about the stakeholdrs):

Team’s Values:

* UN SDGs/Strategyzer
  + Sustainability/green energy/reusability
  + Where do we source the materials from?
* Design for Durability: Functionally, the solution should last long (maintenance should be easy etc.)
* Equity:
  + Ease of learning
  + Affordability

Possible solutions:

Drones can be used to track the lost sheep

Each farmer can choose one certain color that they paint on their sheep (Edwin)

Research tasks:

Questions for Stakeholders:

* You mention cost efficiency a lot, would there be an estimate or an exact budget you have in mind?
* What’s the exact role of a shepherd? Would they be open to doing more in terms of keeping an eye on the sheep?
* Are there more reasons as to why “tracking” the sheep is your most preferred solution? Would you be open to using other methods to solve this issue?
  + Ex:
  + Differentiating the sheep
  + Sheep wander off alone
  + Preventive method?

Requirements from the stakeholders:

General:

1. Cost effective
   1. Should contact stakeholders to get an exact budget
2. Identify which sheep belong to who

* Framing the opportunity
  + Outline value proposition
    - Cost effective
  + Describe design goals
* Present initial design concept
  + Articulate plan for iterating on the design concept to produce a prototype that provides insights into how your concept provides your intended value in the opportunity context
* Articulate why our team is suited to undertake the plan
  + Team’s visions & values
  + Team members
    - How we will use our project management plan and team member background and experience to deliver intended outcomes of project
* Clearly state final outcome or deliverable
  + State how this addresses the value in context of the opportunity