Problem statement

* State the problem. Do not describe the solution.
* The problem should be described such that the reader is lead in their mind towards the solution we have planned.
* In other words, once they have finished reading the problem statement and motivation and scope, they should have a clear picture of our solution in their head before they read what the actual solution is.

Motivation

* Why we are doing what we are doing
* Why does this matter?
* Here we should display sources for our motivation (papers, statistics, etc.)

Scope

* The scope talks about the contributions
* What it is that we will have accomplished over the 10 weeks
* Should be narrow enough that the reader can only envision our solution when reading it
* Background sources for the scope of what we are doing

Key contributions

* Clarify scope of the project
* For example, say what we are going to do, as well as what we are not going to do
* If developing facial recognition from the ground up is not in our scope, say so, and say that it is out of scope because of time, money, etc. Someone else can deal with that.
* Not conclusions
* Will say "this is what we will do, this will be the robot we have built, these will be its capabilities"
* Where we will describe the project

Detail context / related work

* Sources related to the technology we are using
* Sources related to the problems we want to solve
* What else has been done before us in this space?
* What is similar and how will ours be different/an improvement?
* Should have research on the technology we chose to use (OpenCV, for example: what other options are there? Why did we choose to use this one? We have to back these decisions up with sources).

Task breakdown with particular challenges

* Complete list of all tasks, with sub-tasks as specific as possible
* Example: Demonstrate working motors on launch wheels  
   Tasks

-Bolt motors onto 3D printed assembly

-Wire motors to motor driver, and motor driver to Arduino

-Set up lab power supply and connect to motor drivers

-Use servo library found online, read documentation in order to use

-Write Arduino code to send PWM signal to motor drivers in order to move motors at designated speed

-Use IR RPM reader to map PWM signals to rotations to confirm that the set-up is working as intended

* The task breakdowns for all things in this project should be as detailed as the example shown above

Milestones and demonstration goals

* 3 aspects: goal, task, deliverable (they are different)
* Goal: to be able to estimate the state of the robot
* Task: involves writing code, plus more
* Deliverable: some noun, that we can show, proves the goal has been generated. Code doesn't prove this, proves lines of text are written.
* **Example**: state estimation is not specific enough. will also go into potential challenges. (bugs, math syntax, data transfer). Challenges in deliverable. We are graded on how well we hit these deliverables.   
   Goal: to have state estimation capabilities  
   Task: write code to estimate, generate code to show the deliverable, have camera, draw lines. (Go into this much detail.)   
   Deliverable: graph that superimposes a line drawn on a pic or video taken of the robot.

Conclusions

* Not a summary
* Will **NOT** say "this is what we have done, this is the robot we have built, these are its capabilities"
* Take a step back from the engineering
* With regard to society, or some bigger picture, what have we done?
* Why should anyone else care?
* Are there application driven reasons as to why they should care?
* Present idea to non-engineers: "how could this apply to other applications?"
* What are future improvements or projects that could use or learn from this design?