Requirements specification

Team 4

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# Table of contents:

1. Purpose of the team's deliverable

2. A high-level overview of the team's deliverable

3. Complete functional requirements of the team's deliverable

4. The most important quality attributes (non-functional requirements) of the team's deliverable

5. Implementation plan of the team's deliverable

## Purpose of the team's deliverable

## Intended Audience

The software would be used by the people working for area 4 of the Solar System project. Additionally, team leaders and the project leader would have access to this subsystem in case of need.

## Intended Use

The software would be used as part of a larger system, intended to map out customers’ roofs for solar panels.

## Scope

Our intention is to design a software, which would map out high wind pressure areas on roofs and in turn present the solar system engineers what mounting products should be used on the different areas of the roof.

# 2. A high-level overview of the team's deliverable

Our Area 4 department is responsible for determining the exact areas of wind pressure zones on the given roof surface for safety measures. To do so, Area 1 department’s extracted information from the data, provided by the customer, will be used and calculations to find out each wind zone width will be done. Based on said calculations, software will identify the 3 areas of each wind pressure zone: Zone 3 - roof corners that are exposed to the wind, Zone 2 - edges of the roof (without Zone 3 corners) that are exposed to the wind, Zone 1 - the remaining area of the roof surface. There are various types of roofs, so the software will be capable of determining wind pressure zones for more than one roof type. The work of our department will be used in Area 5 workings which then will be packaged into the working software and finally be delivered to the customer.

# 3. Complete functional requirements of the team's deliverable

**Functional requirements:**

1. The software should determine the exact areas for each wind pressure zone on a given roof face.
2. The width of the wind zone (marked “a”) should be calculated using the following formula:

a = 0.4 \* mean roof height, but not less than 3 feet (mean roof height is the average between the height at the lowest and highest points of the roof).

1. The Roof face can have at most 3 different types of wind pressure zones:
   * Zone 3 - near corners of the roof that are exposed to the wind,
   * Zone 2 - along edges of the roof that are exposed to the wind,
   * Zone 1 - the remaining area in the interior of the roof.

# 4. The most important quality attributes (non-functional requirements) of the team's deliverable

The non-functional requirements, i.e. a set of specifications that describe the system’s operational capabilities of the Area 4 will namely be:

• Reliability & maintainability

How often does the software experience critical failures? How much time would it take to fix an issue in case of a critical failure?

• Usability

How easy is it to use the system?

• Performance and scalability

How fast does the system return results? How does performance change depending on the workload and/or type of roof?

• Portability & compatibility

Which hardware and operating systems does the software run on? Does it conflict with other software and processes within these environments?

## 5. Implementation plan of the team's deliverable

1. Communicate to other teams, learn what they expect from us and what we need from them.
2. Build a basic version of the software.
3. Create a prototype of team’s 1 data for testing.
4. Test and improve the software.
5. Work with team 1, 2 and 3 to make sure everything runs together without issues.
6. Figure out how to send our data to team 5.