**Project Proposal**: Process automation “Road Surface Inspection”

1. **PROJECT OVERVIEW**

**Project Name:**

Process automation “Road Surface Inspection”

**Objective:**

Timesavings within the current road surface inspection process.

Context

Road construction company X has a contract with a municipality in the Netherlands. This contract states that company X is responsible for a properly functioning and well maintained road construction surface. One of the sub-agreements in the contract describes that road construction company X periodically delivers an inspection report to the municipality. This report, per hectometer post, indicates whether and where maintenance or repairs of the road surface must be carried out.

To inspect the road surface, video’s are collected and reviewed by inspectors. This collection and inspection process goes as follows:

1. Inspectors drive around in a vehicle equipped with a camera which is used to collect video’s of the road surface

2. Collected video material is then manually inspected by the inspectors, according to the 4-eye principle (two-person rule)

3. If deviations or anomalies on the road surface are identified on the video material, these road sections will be labeled as “further investigation is needed”

3.1 To ensure whether or not the road surface requires maintance or repairs, the inspectors will physically visit these locations, to inspect the road surface in more detail.

4. Video material on which no deviations are found by the inspectors will be classified as “condition of the road surface is good, no further action is needed.”

To meet the contractual obligations, road construction company X must be absolutely sure that all sections labeled as “no further action is needed”, indeed do not require any maintainance or repairs.

This current inspection process requires a lot of time and effort for (the inspectors of) road construction company X. Therefore the company is looking for a solution that enables automated (and thereby faster) but *very* accurate, decision making on road surface sections that must be further investigated -or not.

**Key Deliverables:**

1. ML model that scans collected video material and labels road surface sections as “not further action is needed” or “further inspection is needed”.

2. reporting and visualization dashboard: a user-friendly interface displaying the outcomes, risks, and recommendations (end user: inspectors)

3. risk classification/priority list, based on severity of the deviations and/or anomalies

1. **BACKGROUND AND MOTIVATION**

**Problem Statement:**

The current Road Surface Inspection process is too time-consuming and expensive.

**Proposed Solution:**

A machine learning model that scans road surface video’s and decide wheter or not the road surface section must be further investigated by inspectors.

1. **TECHNICAL APPROACH**
2. < phase 1: … >
   1. < insert: key activities phase 1: … >
   2. < insert: key activities phase 1: … >
   3. ….
3. < phase 2: … >
   1. < insert: key activities phase 2: … >
   2. < insert: key activities phase 2: … >
   3. ….
4. < phase 3: … >
   1. < insert: key activities phase 2: … >
   2. < insert: key activities phase 2: … >
   3. ….
5. **PROJECT TIMELINE AND BUDGET**
6. < phase 1: … ( week X – X ) >

* Hours Estimate: < X hours >

1. < phase 1: … ( week X – X ) >

* Hours Estimate: < X hours >

1. < phase 1: … ( week X – X ) >

* Hours Estimate: < X hours >

1. ……

**Total Estimated Hours**: < XX hours >

**5. RISK AND MITIGATION STRATEGIES**

|  |  |
| --- | --- |
| **Risk** | **Mitigation Strategy** |
| Lack of reliability of the methodology |  |
| Lack of objectivity of the methodology |  |
| Lack of internal validity of methodology |  |
| Lack of external validity of methodology |  |