



Lessons Learned from Developing Prototypes for Customer Complaint Validation

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Motivation

- Companies receive customer complaints related to the quality of provided services
- It can be difficult to ascertain the validity of the complaints
 - Validation can cause unnecessary expenses

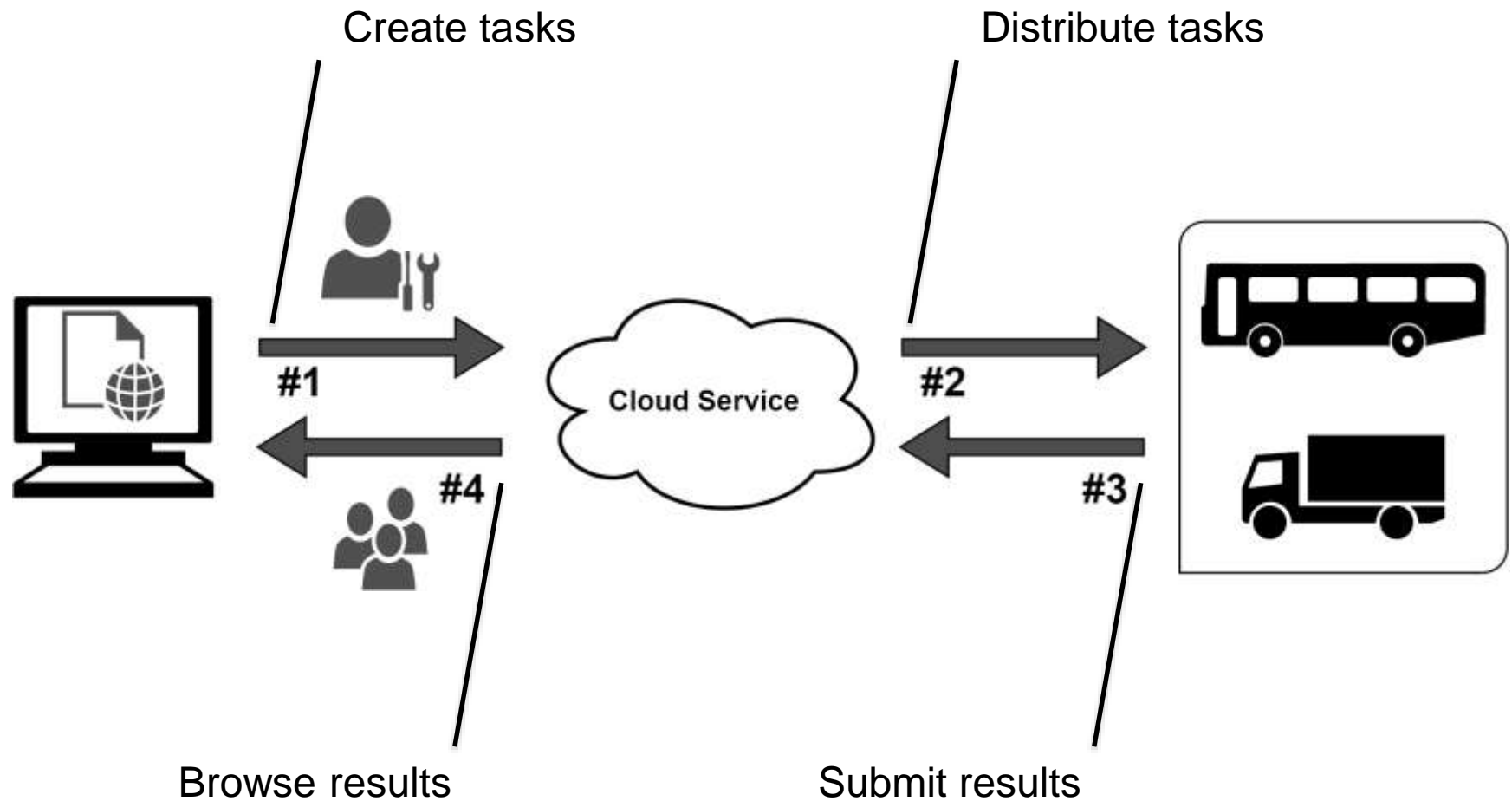


Goals

- Design a system that can be used to assist in the process of customer complaint validation
 - The system should collect data autonomously
- The primary focus is on area observation
 - The utilization of cameras, GPS, and other applicable sensors



Architecture



Use Cases

- Bus stops
- Garbage truck



Use Case

Bus Stops – Motivation

- Customers complain that buses...
 - Do not arrive on schedule
 - Do not arrive at all
 - Do not stop to pick up passengers
- Verify what happens at the bus stop



Use Case

Bus Stops – Implementation

- Fully autonomous Android application
 - No input required from the bus driver
- Utilizes device sensors
 - Detect approach to bus stops using GPS and predefined list of coordinates
 - Use camera to capture pictures of the area around a bus stop
 - Store time and date information



Use Case

Bus Stops – The approach



Use Case

Garbage Truck – Motivation

- Customers complain that trucks do not empty recycling bins

→ Verify what happens at the recycling area



Use Case

Garbage Truck – Implementation

- Fully autonomous Raspberry Pi application
 - No input required from the truck driver
- Utilizes sensors attached to Raspberry Pi
 - Detect when truck is at the recycling area using GPS and predefined list of coordinates
 - Use camera to capture pictures of the area
 - Store time and date information



Use Case

Garbage Truck – The Recycling Area



Lessons Learned

Installation Environment Checklist

- Availability of electricity
- Access to Internet
- Weather and temperature
- Camera orientation, light and reflections on glass surfaces
- Solid device mounting (permanent or temporary) and casing
- Vandalization?



Lessons Learned

Software Checklist

- Compatibility on older devices
- Prepare for unresponsive device
 - Crashes, "hangups", power outages
 - Physical access to the installed device?
- Remote access
 - Security considerations
- Data formats?



Summary

- This paper presented a system designed to help those responsible for managing customer complaints
- Functionality was illustrated by two prototypes (use cases)
- The research found out that mobile platforms can work as a quick starting point for rapid prototyping



Thank You

