Crowdsourcing-Based Musical Predictions

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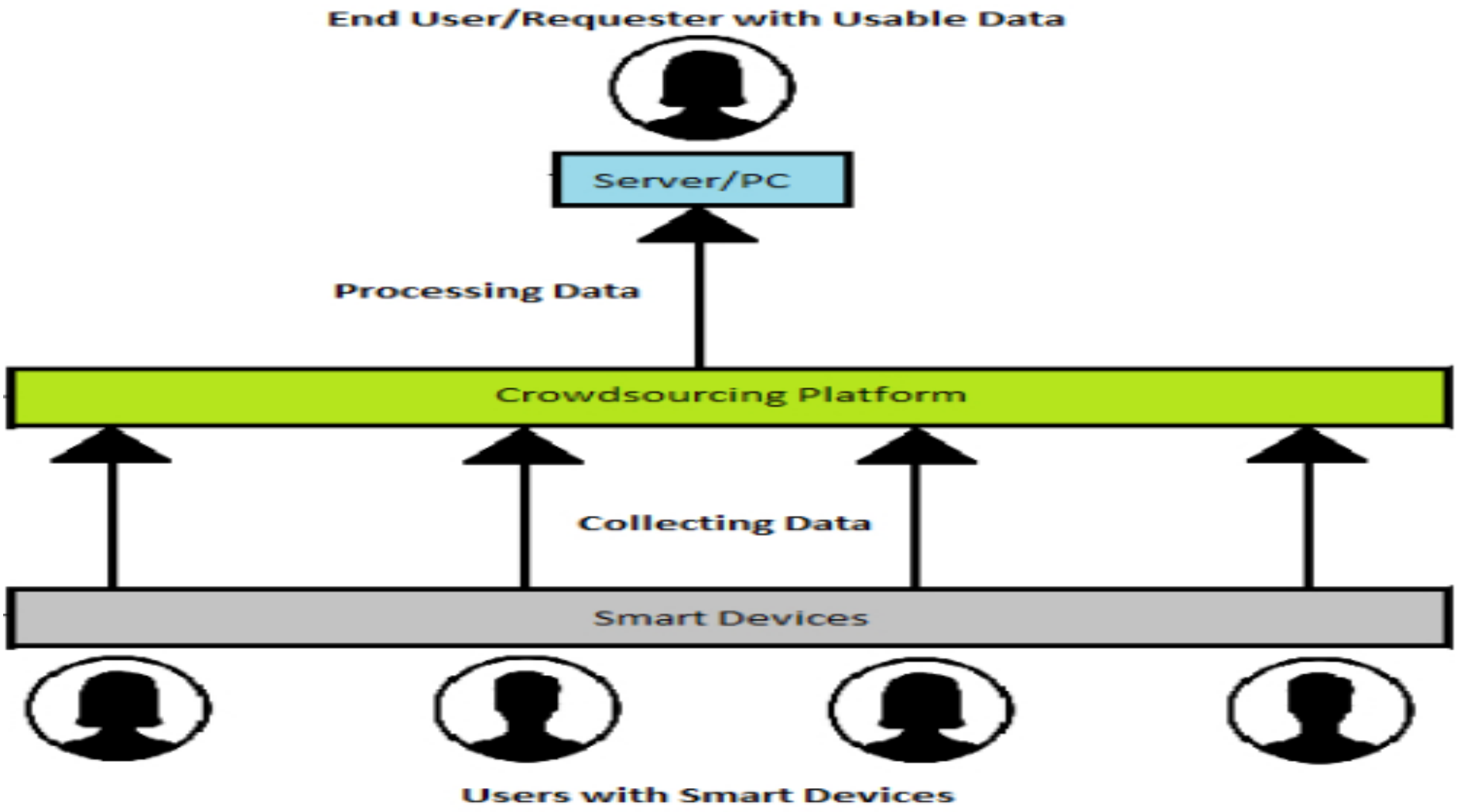
Overview

- Using clustering and crowdsourcing, we are able to make musical predictions to an audience of users
- Designed a modified crowdsourcing framework
- Operates on a mobile network

Background - Crowdsourcing

- What is it?
- Why use it?
- Benefits and Risks?

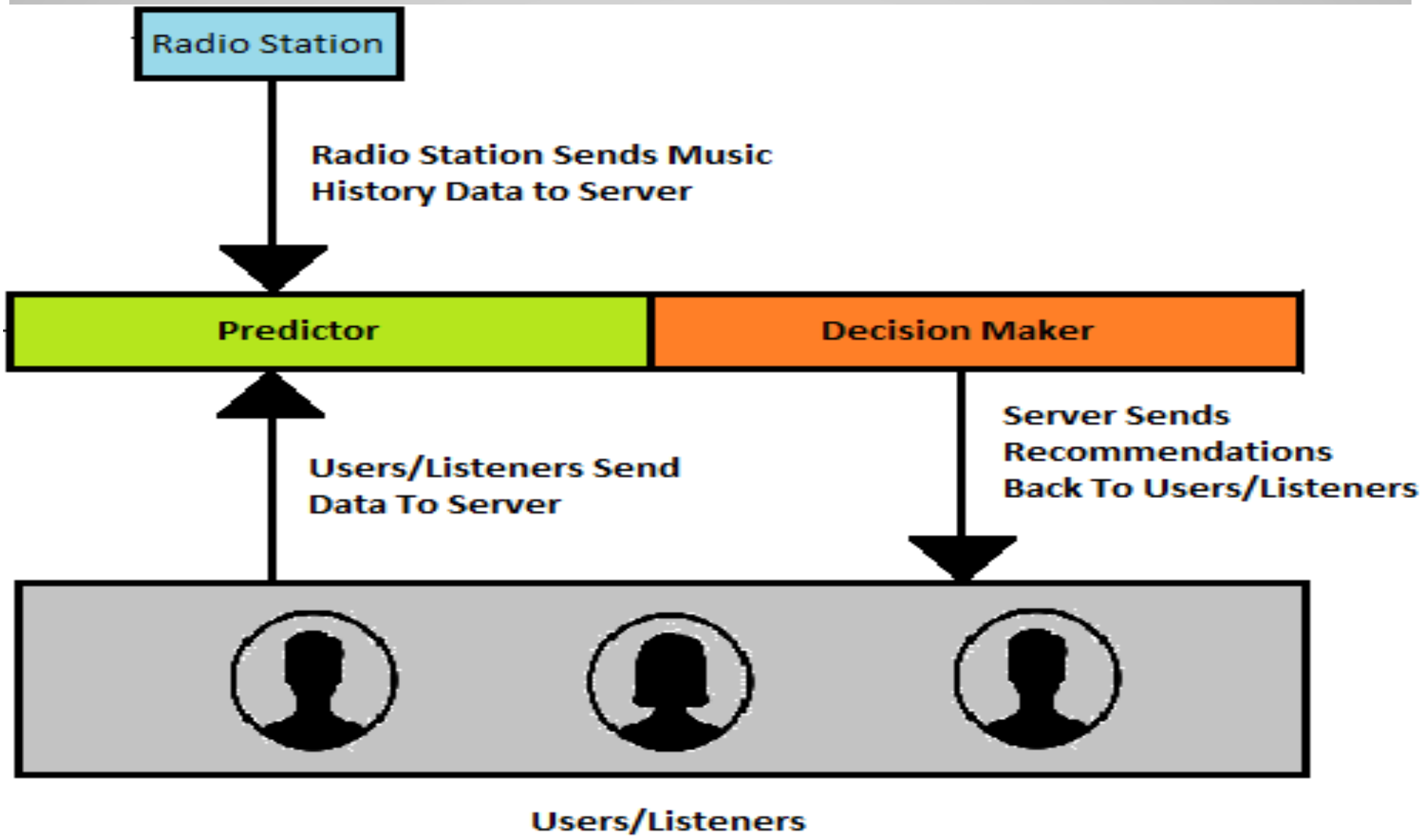
Basic Crowdsourcing Framework



Mixing Crowdsourcing And Music

- Goal: Create a central service that can be used on mobile devices
- We can use crowdsourced musical data to make recommendations
- Modifying the traditional crowdsourcing framework so it will change with users

New Framework



Predictor

- This is where the musical data is processed
- Apply K-means clustering to the data
  - Simple and effective method to group data
- 3 Clusters are formed

Decision Maker

- Implements crowd-voting to rank recommendations
- Users build a dynamic queue of songs
- This will change as different users connect or disconnect

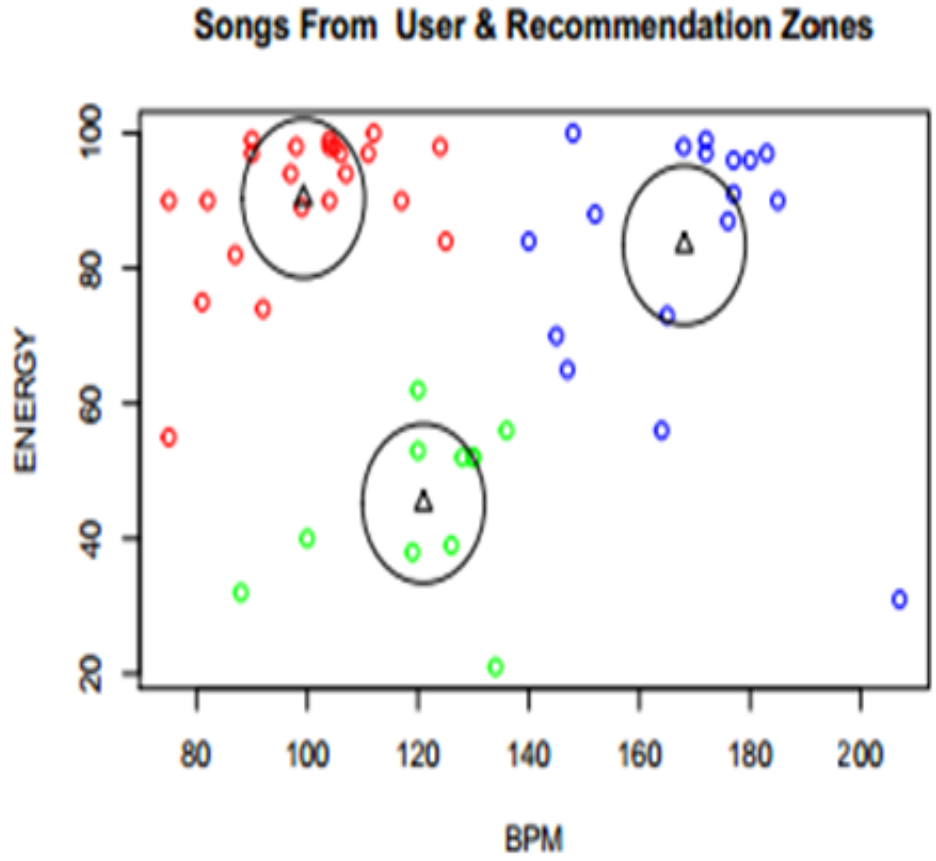
Data Collection

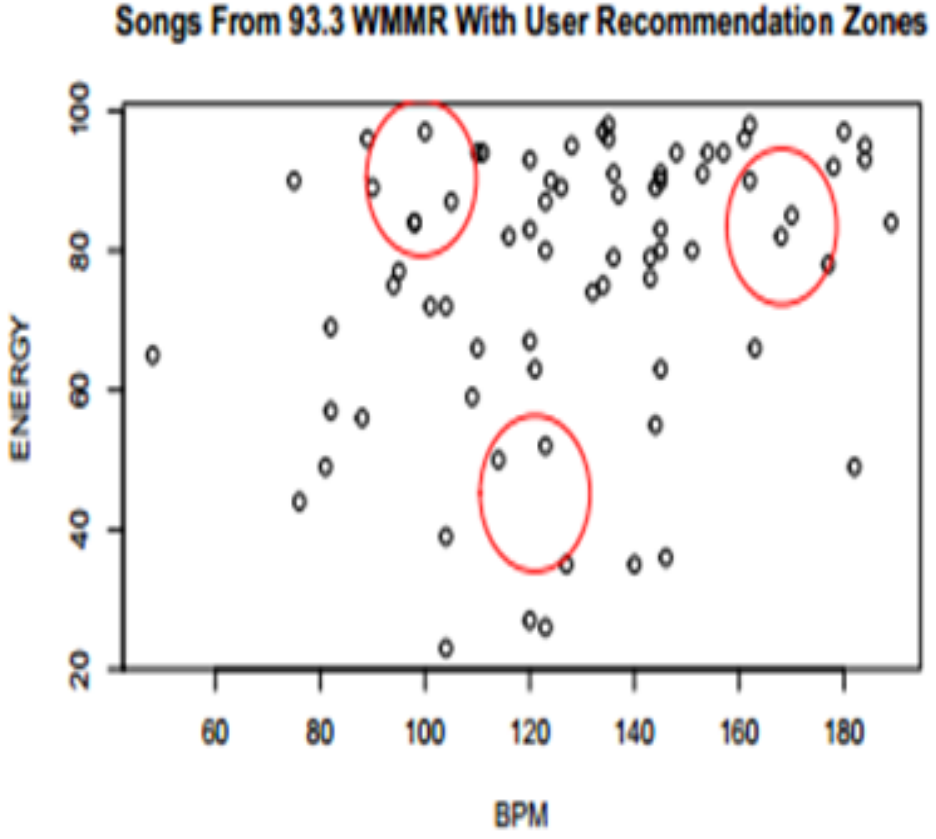
- Using Spotify and Last.fm we collected musical data
- Sample data collected from a user's Last.fm account.

Title	Artist	BPM	Energy	Dance
Your Graduation	Modern Baseball	185	90	40
Constant Headache	Joyce Manor	99	89	41
Disappeared	Sorority Noise	97	94	42
True Believers	The Bouncing Souls	98	98	38
Nutshell	Alice In Chains	136	56	38

Results

- Musical data was graphed and K-Means clustering was applied & compared with an existing radio station:





Analysis

- Recommendation zones can be put over another set of musical data
- Any songs that fall within these zones will be considered as a possible upcoming song
- This process happens in real-time as the pool of listeners changes

Future Work

- Develop the framework that will allow users to make an account and sign-in
- Apply different types of clustering algorithms to the data
- Address common security risks that are associated with crowdsourcing
  - Privacy of users
  - Malicious users

Thank you – Questions?