**CSE8015 Advanced Internet Services**
**Term Project Report**

**Mesut ORMANLI**
**Institute of Pure and Applied Sciences, Marmara University**

## Introduction:

**Vote Observer** is a simple observation system that could be used for increasing security and result trustworthiness of elections and referenda in a "distributed" way.

## Problem Definition:

Elections and referenda are fundamental to representative democracies.
Fair elections and referenda require electoral competition and **"secret ballot, open counting"** principle.

In Turkey, polling station committees and the Supreme Election Council [YSK] are authenticated and responsible to undertake necessary actions to manage the order of elections, and to ensure election [or, referendum] results' trustworthiness.

With rough geographical conditions and over 80 millions population of Turkey, polling station committees and the Supreme Election Council could be considered insufficient to ensure election results' trustworthiness correctly.

## Motivation:

Constitution of the Republic of Turkey, Article 67 says,

*"Elections and referenda shall be held under the direction and supervision of the judiciary, in accordance with the principles of free, equal, secret, direct, universal suffrage, and public counting of the votes. "*

This article of the Constitution, in Layman's terms, means "No one could be prohibited from observation of a vote counting."

## Proposed Solution:

A distributed, on-line, peer-to-peer observation system for the citizens. Vote countings could be broadcasted at poll stations, and the citizens could observe these countings directly.

**System Model:**

Vote Observer system consist of three applications:

- A “Ballot Box” application that used at counting of the votes,
- A “Watcher” application used by citizens to observe vote countings, and
- A “Server” application used to establish peer-to-peer communication between ballot boxes [e.g. poll stations] and the watchers.

In these applications, WebRTC protocol is implemented with Java and Spring Framework, and this applications deployed into seperate Tomcat servlet containers. To establish connection between the poll stations and the watchers, server application must be up and running, and both “ballot box” and “watcher” applications must know the server’s address.

**Conclusions:**

This project may be considered an “anchor point” to realize an idea, but the idea behind this project could be an important step for the evolution of the representative democracy.

**Future Work:**

The source code of this project is under the MIT License, and available at:

**https://github.com/hyperpostulate/voteobserver-webrtc**