

# METU, Department Of Computer Engineering

## Graduation Project

### Proposal Form

***\*\*\* This Part is for guidance and to be deleted from your proposal \*\*\****

*(Please read carefully, and follow the instructions to prepare the project proposal form.)*

*(Instructions to fill in this form are given in italic fonts and in parentheses. These instructions should be replaced by relevant information to provided.)*

*(To provide an input for a section of the form, delete the instruction and provide your input in place of the deleted instruction. In the final form that you will submit, there shouldn't be any instructions left over, including this section of the form.)*

*(If you feel that a particular instruction is not relevant to your project proposal, please use a proper explanation for this, rather than ignoring the instruction.)*

*(The final form should not exceed 4 pages, excluding this page and including the References section. Please use Arial, Normal, 10pt fonts and single line spacing.)*

*(Please follow these instructions carefully to improve the quality of your proposal.)*

### Important Notes

A project could be proposed by (i) a student group, (ii) a company, or (iii) a faculty member of the department by filling in this form and submitting it to [49x-proposal@ceng.metu.edu.tr](mailto:49x-proposal@ceng.metu.edu.tr) by e-mail. For a project proposal, there might be a sponsoring company supporting the project and providing some form(s) of resources for the project.

Each project will be carried out by a group of 4 students over the course of 9 months, which amounts to 36 man\*months. It is very important that your project's workload is around 36 man\*months. Please make sure that you have a rough justification about the workload of the project.

If your proposal might contain a patentable idea or any type of intellectual property, please first make sure to follow appropriate steps (apply for a patent, etc.) before sending your idea to us. Once this form is received from you, the instructor(s) and the department has no responsibility regarding to intellectual properties of your project/idea.

All sources and documentation developed for this course are assumed to be public domain (GPL, CC or similar license) by default. If you need any exception for license and disclosure of project work, please specify this in detail in IP section of the form.

Please note that source codes, documents and issue tracking should be kept in department servers. No restrictions can be requested for limiting faculty and assistants access to student work.

# Project Information

## Title

InTV

## Target

Public       Restricted

## Proposer Information

Name(s)	Dr. Ismail Sengor Altingovde (METU)
E-Mail(s)	

## IP (Intellectual Property) Information

*The members of the project group should accept that some/all parts of the project output can be included and/or used in the Proposer's research project(s) prototypes (for non-profit and academic use), in which case the students will get the credit in corresponding documentation, reports and/or academic publications. It is possible to involve a commercial company during the project, in which case further IP issues may be considered and resolved altogether.*

# Project Description and Background Information

## Description

*This project aims to develop an app with the following functionality:*

- i) Identification: determine which item (e.g., a TV show) a user is watching "now",*
- ii) Enrichment: provide real-time relevant data for the current item (e.g., if the user is watching a movie, provide relevant information from imdb, etc.),*
- iii) Interaction: provide user interaction interface if there is a relevant pre-registered "campaign" (e.g., might be a poll related to this show, an online quiz or campaign with an award, a commercial with a discount, etc.).*

## Similar Products/Projects

*There are some similar apps on the local and global market, as follows:*

- i) Yahoo's IntoNow: A similar idea that has been followed by Yahoo a few years ago; the app is not anymore alive, yet the underlying technology is embedded into other Yahoo TV products.*

ii) Yan ekran [1]: This app is provided by TV8 and allows the users to vote in certain programs (especially, competitions like Survivor).

iii) TheTake [2] and Ekranda [3]: These are again so-called second screen apps, yet they present the users the clothes or locations you see in a TV show and want to buy or visit, respectively.

iv) VoxVote [4]: This app allows real-time voting during events such as classroom presentations, etc.

## Justification of the proposal

The project targets a topic that is practically interesting, technically challenging and commercially valuable. For the end-users, the proposed app may increase the interaction with TV shows and allow accessing relevant information immediately. For the content providers, the app will provide a new way of user engagement, as well as a channel for sharing/gathering information and increasing their financial revenue (via personalized ad campaigns, etc.).

## Contributions, Innovation and Originality Aspects of the Project

The proposed app differs from the existing apps in the local market as they only address a certain TV channel, whereas the proposed app may work with any TV channel (and/or in other similar environments, say, a live presentation in a classroom or conference, which is a potential direction for extension).

The project will require the members gain knowledge and experience in app development for iOS and Android, which is quite popular in the job market. Furthermore, certain stages of the project, such as “identification”, may require very sophisticated techniques. The possible project members are free and indeed expected to add more creative functionality and/or use-cases for such an app.

## Technical Aspects of the Project

For each stage, there are several technological options. In particular, for identification stage (of TV shows), two possibilities are real time searching for TV schedules or using a QR code (assuming that the TV channel broadcasts the QR code). When a user clicks on the app, it identifies the current TV show via one of these methods, and the user will be in the “connected” state (i.e., “watching” it). More sophisticated technologies include audio watermarking or fingerprinting (see [5]).

For the enrichment stage, for a given item, its relevant info (i.e., facts) should be crawled and extracted from the web, as well as available social media feedback. For instance, for a serial, latest tweets about the current episode can be collected; and for a movie, an infobox from imdb or wikipedia can be extracted and displayed, etc. In all cases, links for the information and/or news about the relevant entities (artists, locations, etc.) can be displayed, as well. Depending on the pace of the project group, more sophisticated solutions for extracting and ranking relevant entities can be considered [6].

Finally, in the interaction stage, the content provider may create various channels to interact with the user: e.g., at a certain moment, say in a debate show, the app will ping user’s mobile device with a poll (asking whether you agree with the speaker or not), or a pop-up quiz (say, with an award), a commercial, etc. Once (and if) the user responds, the response should be saved, so that the provider can have a chart (showing what users think about the debate), etc. Of course while you are “watching” the given show, you are connected to all other people, and you can share comments, say, in a specified area in the app.

## Targeted Output, Targeted User/Domain Profile

*The app will be used by the TV audience as described above, i.e., to connect to a TV show, see relevant info and interact with the show. The server side of the app will allow content providers to associate various forms of interactions (like polls, surveys, etc.) with the content; gather their results in real-time, aggregate in visual formats like charts, etc.*

*The success can be measured via the following criteria:*

- i) Correct and fast identification of the TV show*
- ii) Correct and fast extraction of relevant entities, facts, etc.*
- iii) Correct and fast user interaction, and correct real-time results at the content-provider side.*

## Project Development Environment

*The app is intended to run on popular mobile platforms, such as iOS and Android. The server side can be implemented in any high-level language. The proposer has neither restriction nor recommendation in identifying and using tools for the implementation.*

## External Support

*No external support at the moment.*

## References

- [1] [www.tv8.com.tr/yanekran](http://www.tv8.com.tr/yanekran)*
- [2] <https://play.google.com/store/apps/details?id=dogantv.ekranda&hl=tr>*
- [3] <https://itunes.apple.com/us/app/thetake-fashion-in-movies/id929751459?ls=1&mt=8>*
- [4] <https://www.voxvote.com/tutorials/explain>*
- [5] <http://blog.eltrovemo.com/529/synchronized-second-screen-technologies-panorama/>*
- [6] Blanco et al., "INTONEWS: Online news retrieval using closed captions", IPM, 2014. <http://dx.doi.org/10.1016/j.ipm.2014.07.010>*