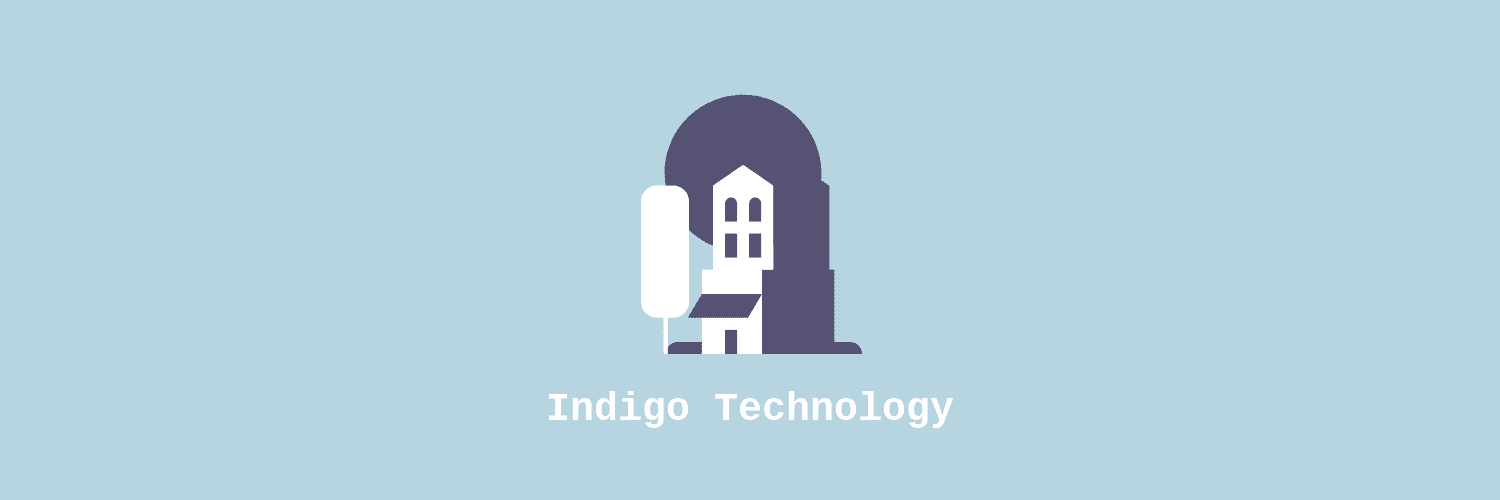
ındıgo technology



## **bUSINESS sTATEMENT**

# pARTNERS

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### 1.INTRODUCTION

This report is prepared to give information about the general description, mission and vision of the company. Brief explanation of 5 projects written by co-owners in their own interpretation. The role of the co-owners in the company and their skills that might contribute to the company. Moreover, it includes the time table of tasks that will be done in a month.

### 2. MISSION AND VISION STATEMENTS

#### Mıssıon

Introducing solutions to the real life robotic problems with the help of airtificial applications.

#### Vısıon

Indigo Technology brings ingenuity and innovation to everyone by providing best automated home services.

3.Human Resources

The most important thing in a company is the members of the company to complete each other. The founders of this company have known each other for a long time and they are sure that they constructed a productive and balanced team.

Our members are capable of handling different sides of a project. Some members take care of software while others work on hardware design. For example; one of the members, Mert Eren Kandilli studied in RAS (Robotics and Automation Society) deals with the robotic side of the project; another member, Ahmet Pokerce, studied on image processing during his internship and deals with image processing side of the project. Ali Serhat Demirci and Kaan Türker worked on FPGA and some microcontrollers, so they work on the embedded systems in the project. Finally, Ecem Karamercan studied electronics during her internship and she works on the hardware side of the project.

Diagram

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Fıgure 1: Indigo Tech Company Structure

4.Project defınıtıons

#### Home Securıty System

In this project contributors are expected to design a smart system that will monitor the house from intruders and detect abnormalities. The system should be able to understand whether the person who enters the house is a resident or an intruder. The system should warn the residents if there is an abnormal activity or entrance of an unknown person (burglar, attackker etc.). Also, the system should have an user interface which should be easily accessible to add or delete residents, keep a log of entries and exits. These activities should be under the respect of residents’ privacy.

There are some difficulties about this project. The first difficulty that comes to mind immediately is how one can make the system too easy for anybody who wants to add or delete residents. Most of the object recognition systems require very high datasets and finding images of residents to add them in the system might be another difficulty. Since most of the classifiers fail when there is even a small angle change.

Face recognition using deep learning might be useful to implement at the entrance. Instead of monitoring the inside, setting motion detectors and glass break detectors to understand whether there is a break in or not. Face recognition might be deployed with a smaller dataset.

#### Orbıter

In this project, members are expected to design and construct two fully automated land robots. One of these robots, called agent, moves on a direct path in any direction with constant velocity (minimum 10 cm/s). The other robot is expected to orbit the agent with a maximum distance of 40cm. Initially, when the robots are separated, at most 100 cm, first the land robot should detect the agent’s location and its direction. Then it should catch the agent and complete two tours around the it. There is also a time constraint that all of these parts should be completed in at most 30 seconds.

Since this project includes both mechanical and electrical parts, members might face some problems. For example, to detect the agent the land robot might have to turn around itself. Also the robot should detect the agent’s velocity to catch it and adjust its velocity accordingly. In addition to these, time limitation might be a problem in this project.

#### “Cısss!”

According to the Statista Research Department’s research in 2016[1], in Turkey there are more than %30 households having at least one canine or feline friend. This number increases in the European countries or in the US; with the UK and France being more than 60% and the US being more than 70%. Assuming most of these pets are living indoors with their owners, this creates a problem with restraining pets to use and/or reach specific places in the house such as baby cribs, window or balcony openings or bedrooms.

To solve this project, wearable smart device technology will be used by designing a smart collar for the pets. Also there will be multiple microunits that can be used to determine the boundaries of the “forbidden” zones for the pets. These microunits are expected to communicate with the collar via a proper wireless communication system to prevent pets’ visit to the forbidden zones. The biggest challenge of this project is to balance between providing a strong enough negative feedback to the pets to reinforce them not to visit these spaces by means of electronic, mechanical and/or acoustic methods and also keeping a very high ethical stance to prevent harming the pet slightest, both physiologically or mentally.

[1] :https://www.statista.com/statistics/961098/worldwide-pet-ownership-by-type-by-country/

#### Intellıgent Agrıculture at Home

It is a project that will give the plant the nutrients and substances it needs by paying attention to the time interval and amount. The substances are water, fertilizer or drugs. Moreover, all environment conditions such as, temperature, light or diseases, are controlled and regulated by the system to maximize the productivity of the plant. Furthermore, the system must be more productive than the classical agriculture applications because of bypassing the extra energy consumption and the cost of the system.

The project comes with some challenges. First of them is reducing the energy consumption of the system that must work 24/7. Secondly, detection of pests, fungi and diseases may be difficult. Lastly, some required mechanical processes such as hoeing the soil without damaging the plant may be challenging.

#### Smart Shoppıng Cart

In this project, participants are expected to design an automated shopping cart that will ease the customers shopping process. The shopping card should follow the customer during the shopping activity, add the requested item into the cart and record the goods in the cart. Moreover, the cart should have a user interface to show the list of items in the shelfs and in the cart. The customer could select an item from those lists either to add or remove an item from the cart.

Some aspects of this project can be challenging. At first, the shopping cart should track the customer while avoiding possible collisions. And then, it should add or remove an item by itself. This process includes lots of automated motor drives and feedback mechanisms.

5.organızatıonal chart

Diagram

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Fıgure 2: Organizational Chart

6.conclusıon

In summary, we determine our mission and vision. Also, we defined the roles in the company, what does the owner of the role do, and we decided who has which role. Lastly, we did some research about the 5 projects and we thought about the possible challenges of each project if we choose it.

6.appendıces

Timeline

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Text

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Graphical user interface, application

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Graphical user interface, text, application

Description automatically generated

Graphical user interface

Description automatically generated

Graphical user interface, text, application, email

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