

PROJECT OVERVIEW

This automation deals in monitoring the water level in the tank and to turn ON/OFF the motor based on the level of water in our homes with Alexa based control. The entire device is user friendly and compatible to operate since all the operations are automatic.

Important uses of this device:

- ✓ The user can control the ON/OFF functions of the water tank.
- ✓ He/ She can even check the level of water in the tank in case of both RO & Bore tank level.
- ✓ The user can also monitor the entire system through their mobile phones even in remote places if they have access to internet connection.
- ✓ The user also gets an option to choose manual function, incase he/she feels they don't need automatic in any moment.

SOFTWARE & HARDWARE

As a part of the hardware components there are 2 micro controllers used.

1. **espRainmaker** the official software of espressif systems. It uses Amazon aws services for cloud storage.
2. **Sinric pro** software which is a limited free service that helps us trigger alerts in Alexa. This controllers work is to get the 100% status from the 1st microcontroller and give the notification through Alexa.

ALEXA:

Alexa's work is to trigger the routine in daily basis and to give notification to the user about the status of the water level in the tank.

SELECTOR SWITCH:

In this system, there are totally 2 modes in this device Auto and Manual. This mode can be chosen via **Selector Switch**. Selecting the value 0 will completely cut OFF the motor's connection to both Auto & manual modes, then this motor cannot be turned on at all.

AUTO MODE:

1. In Auto mode, the Bore Motor Turns ON when the water level is below 25% in the tank and Motor turns OFF when the water level reaches 100%
2. During this mode the user can also turn ON/OFF the motor by pressing the motor button present in the Smart Tank device if necessary.
3. When the RO tank reaches 100% the buzzer gets turned ON and the only way to turn OFF the buzzer manually is to press the button provided in the right side of the smart tank device.
4. Alex sends an announcement like *"The RO tank has reached 100% Please turn OFF the motor"* when the RO tank reaches 100%
5. The ON/OFF button present in the smart tank device is to completely turn ON/OFF the smart device when ever needed by the user.
6. Each color of the LED depicts different status of the motor. The value in the display with letter "M" will change according to the state of the motor.

GREEN – When the motor is turned ON

RED – When the motor is turned OFF

BLUE – Indicates that the device is connected to the Wi-Fi network.

(Note: If this blue LED isn't glowing, please check your network connection and try to restart the device by turning OFF for 5 sec and turn it ON back)

MANUAL MODE:

1. The user can also control the Bore Motor manually without using this smart device. When the manual mode is selected in the selector switch.
2. In this mode, there will be no automations running in the bore motor. All the operations should be done manually in a basic manner by the user including turning ON/OFF the motor.

(Note: In this mode if the user turns ON the motor it won't turn OFF automatically)

S



When segmenting the market, start by defining the Total Available Market (TAM), then Serviceable Available Market (SAM), and finally Target Market (TM).

- **Total Available Market** – This represents the entire industry the business is operating in. It includes all the different types of customers who are potentially interested in the company's services. For example, if operating a home-based bakery, the TAM is everyone who is interested in buying baked products. Provide data on the number of prospects in the industry, for example, businesses, households, etc.
- **Serviceable Available Market** – This is a subset of TAM and represents all the customers that the business can effectively serve. As a home-based bakery, for example, it may not be possible to serve everyone in the country. Therefore, the SAM may need to be defined according to geography. It would be reasonable to sell products to people in nearby towns.
- **Target Market** – This is a subset of SAM and represents the specific intended customers to serve. For example, it is possible to segment the target market according to criteria such as price (high-priced versus low-priced), quality, geography, occasion (kid's birthday cakes, pastries for office workers), and others. Ask why the business is selecting a particular target market. By narrowing down on the target market, it will be easier to focus sales and marketing efforts on the type of customers who are most likely to buy the business' products.

As the business grows, it will be able to evaluate the percentage of the target market it is reaching. This is known as market share. Use graphs and charts to describe the percentage market share within the next 2 to 3 years.

COMPETITION

In this section, analyze and dissect the business rivals. Competitive analysis enables the owner to know more about and gain a deeper understanding of the business' competitors. Make sure that this section describes clearly how the company's solutions are better for consumers compared to the competitors identified.

Here are some factors to consider when analyzing the competition:

- **Direct competitors** - When identifying competitors, focus on those who are providing products or services that are similar to the business. How long have they been in business?
- **Competitor strengths and weaknesses** – Determine what competitors are good at and what they are not offering. Use creativity to identify opportunities that rivals do not have.
- **Status quo** – Examine the mindset of the other businesses and target customers. Does the business intend to introduce a new idea that will disrupt how things are done?
- **Messaging** – How will the package of this business' services overcome the competition?
- **Uniqueness** - What advantages does the business have over the competition? Why will the company's service stand out and capture market share?

SWOT ANALYSIS

A SWOT analysis is a useful tool for evaluating the business by zooming in on its strengths, weaknesses, opportunities available, and potential threats. Consider the following:

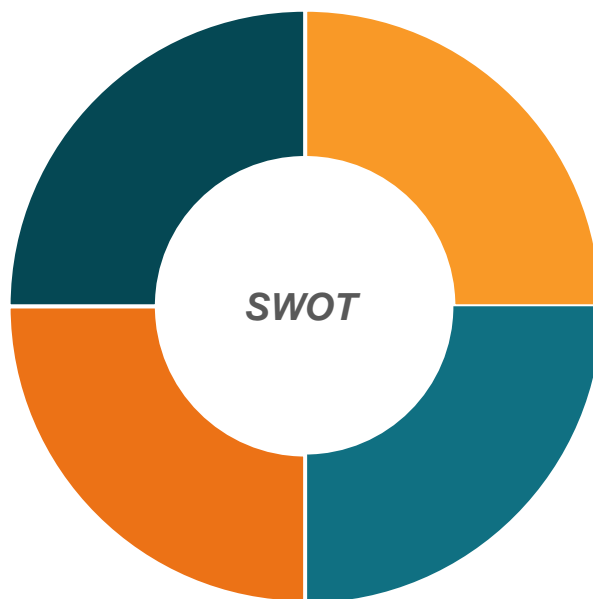
- **Strengths** – What strengths does the company have now and how will these strengths evolve moving forward?
- **Weaknesses** – What are the deficiencies in the services? Which areas of the business should be improved first?
- **Opportunities** – How can the business leverage partnerships and new innovations to grow the business? Which other segments of the industry would the company consider entering in future?
- **Threats** – Are there external factors (controllable and uncontrollable) that could potentially stifle cash flow or business growth?

STRENGTHS

- Advantage
- Capabilities
- Assets, people
- Experience
- Financial reserves
- Value proposition
- Price, value, quality

OPPORTUNITIES

- Areas to improve
- New segments
- Industry trends
- New products
- New innovations
- Key partnership



WEAKNESSES

- Disadvantages
- Gap in capabilities
- Cash Flow
- Suppliers
- Experience
- Areas to improve
- Causes of lose sales

THREATS

- Economy movement
- Obstacles faced
- Competitor actions
- Political impacts
- Environmental effects
- Loss of key staff
- Market demand

Once the SWOT analysis is complete, consider the following aspects of the business:

- How will the business' strengths help capitalize on available opportunities while minimizing threats?
- How will the business' weaknesses prevent it from maximizing on these opportunities?
- How will the business' weaknesses expose it to threats?