Cover page

Project Title: Tablet disintegration device

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Format:

- Single space, Times New Roman.
- 12 pt,
- Maximum 1 page.

Abstract Body:

Items must be provided in the Abstract:

- Why do you think this project is important? Please explain the significance of this Project in brief.
- In your point of view what are the important aspects that should be covered in the project?
- Objective(s): In your view, please explain the main objectives of the project.
- Methodology: Give a brief outline of the application development process.
- Had this project been done before? Are there any similar applications available today?

- **Note:** Please deliver this abstract early to ensure that your Project has been approved by the department's projects committee. **Registration will not be done without this approval.**

Project's Abstract:

Tablet Disintegration Device is ensuring the effectiveness of tablets by measuring their disintegration behavior and time. The disintegration time of a tablet is a key indicator of its ability to deliver the active pharmaceutical ingredient to the body effectively. If tablets disintegrate too slowly, A significant amount of the drug may be excreted in the feces without being absorbed; if too quickly, the blood level may become too high, causing an overactive response.

The project will include the mechanical design of the device as well as accurately simulating the human digestive system, Integration of sensors and control systems to monitor and measure the disintegration process in real-time, Finally Ensure that the device meets industry standards and is calibrated to perform tests accurately and consistently.

The project aims to design and develop a mechanical device that simulates the human environment (stomach) in which tablets are disintegrated and is easy to use for medical laboratory technicians.

The device consists of: a Media Reserviors, a pump that pushes the liquid into the flow cell and a flow cell where the tablets are placed. The cell contains a Heat Exchanger Coil.

The tablet is placed inside the flow cell and once the liquid is pumped from the reservoir through this cell it comes in contact with the tablet and the tablet starts to disintegrate. The flow cell contains a heat exchanger coil which helps in maintaining the temperature of the liquid equal body temperature, Samples of the liquid in the tank can be collected manually (Manual Sampling)or automatically using an another pump (Automated Sampling)

Similar devices and applications have been developed for this device such as: ZT 720 Series. However, this project aims to create a more effective solution in terms of accuracy and ease of use.