

Item #	User Needs Intended Uses	Design Inputs (Technical Requirement)	Acceptance Criteria		Design Outputs	Design Verification (Outputs = Inputs)	Design Validation (User Needs Met)
			Ideal/Goal	Limit			
1.0 Customer Requirements (e.g. Functional)							
1.1	fast results	results display in X seconds					
1.2	easy to use	Average user can input and get results in X seconds; input volume less than X in^3; buttons to be pressed less than X; can be cleaned in X min; amount of instructions required for first use should be no more than X steps					
1.3	reliably detects gluten in prepared food	able to detect gluten at various levels in ppm (which is the unit for gluten measured), rate of false negatives is <x					
1.4	easy to understand results	user at seventh grade reading level can interpret results in x seconds // results can be read from up to X feet away					
2.0 Product Performance Requirements (e.g.Mechanical)							
2.1	light-weight	weighs less than X pounds					
2.3	long battery life, alert when low on battery	able to remain usable for X hours--when it is below X percentage a notification will be displayed					
3.0 Biocompatibility Requirements							
3.1	will not contaminate food that is being tested	there is not an x amount of change of mass in food composition					
3.2	easy to clean	user can clean the entire thing in X minutes					
3.3	Safe for users - no adverse physical effects (i.e. radiation)	radiation on contact less than X					
4.0 Regulatory Requirements							
4.1	Clinically tested for gluten detection	used in X studies to prove that is compatible/reliable					
4.2	food-safe	Less than x amount of chemical and physical byproduct from solution					
4.3	FDA approved	follows all regulations of X requirements/organization					
5.0 Interfaces with Other Systems							
5.1	an app to read results / see detailed readings	the data is able to be found in X seconds on an external device (such as a smart phone)					
5.2	popular smart phones (andriod/apple are different systems)	display screen of interface fits into the Apple phone (750 x 1334) or into Android phone (640dp x 480dp), can be downloaded and opened on iOS and android					
5.3	standard charger or disposable batteries	uses common batteries sold in US that uses x voltage following this link, battery compartment size matches https://www.webstaurantstore.com/guide/923/batteries-buying-guide.html uses common charger posts (following this link https://tripplite.eaton.com/products/usb-connectivity-types-standards)					
6.0 Other							
6.1	low/no waste	device can be used without obviously degrading for X uses // generates less than X grams of waste per use					
6.2	can be carried in a purse/backpack	volume less than X in^3, dimensions less than X by X by X; weight less than Xlbs					
6.3	quiet/low profile (not disruptive in public space)	noise level less than X decibals					
6.4	tests the entire meal for contamination	concludes if gluten is present in up to X grams (X cups/ounces) of food, minimum amount of food is X grams/cups					
6.5	can test both solid and liquid food, both hot and cold	able to detect gluten in liquid of X viscosity range, X density range // able to function on food within X-X degrees F					