

UNIVERSITY OF MORATUWA, SRI LANKA

Department of Electronic and Telecommunication Engineering

EN2160 - Electronic Design Realization

Conceptual Design Report

FM Radio



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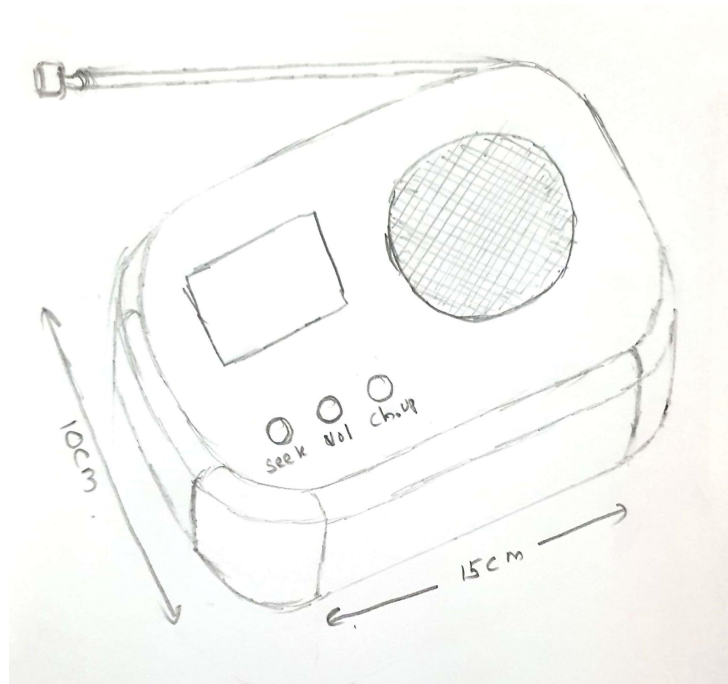
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7 June 2023

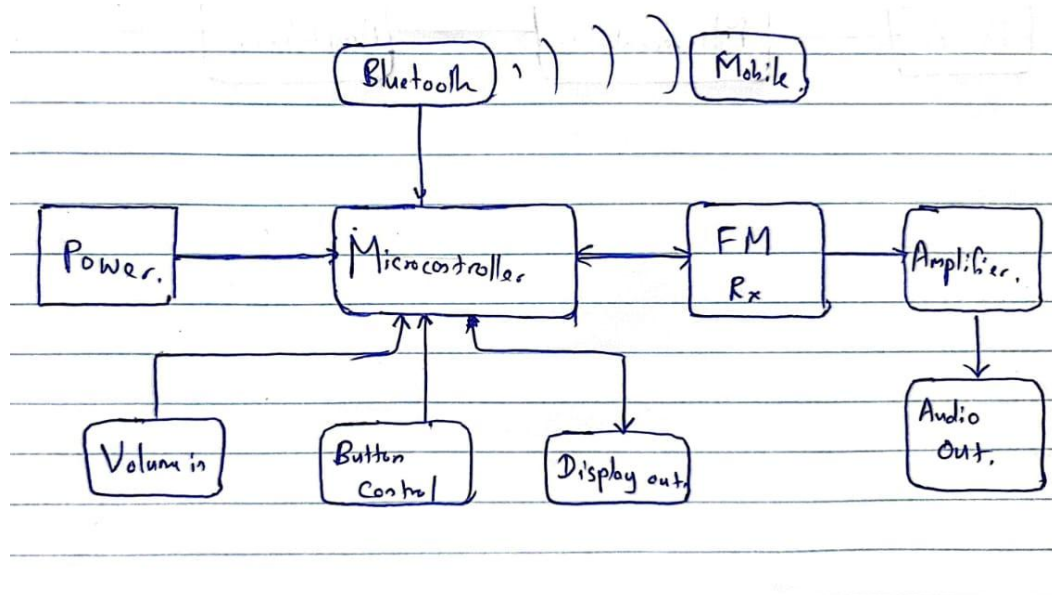
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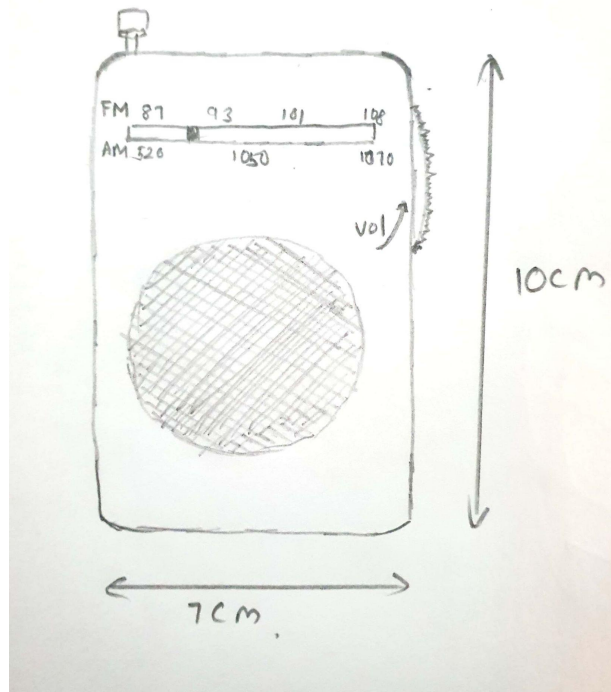
Conceptual designs and Functional block diagrams



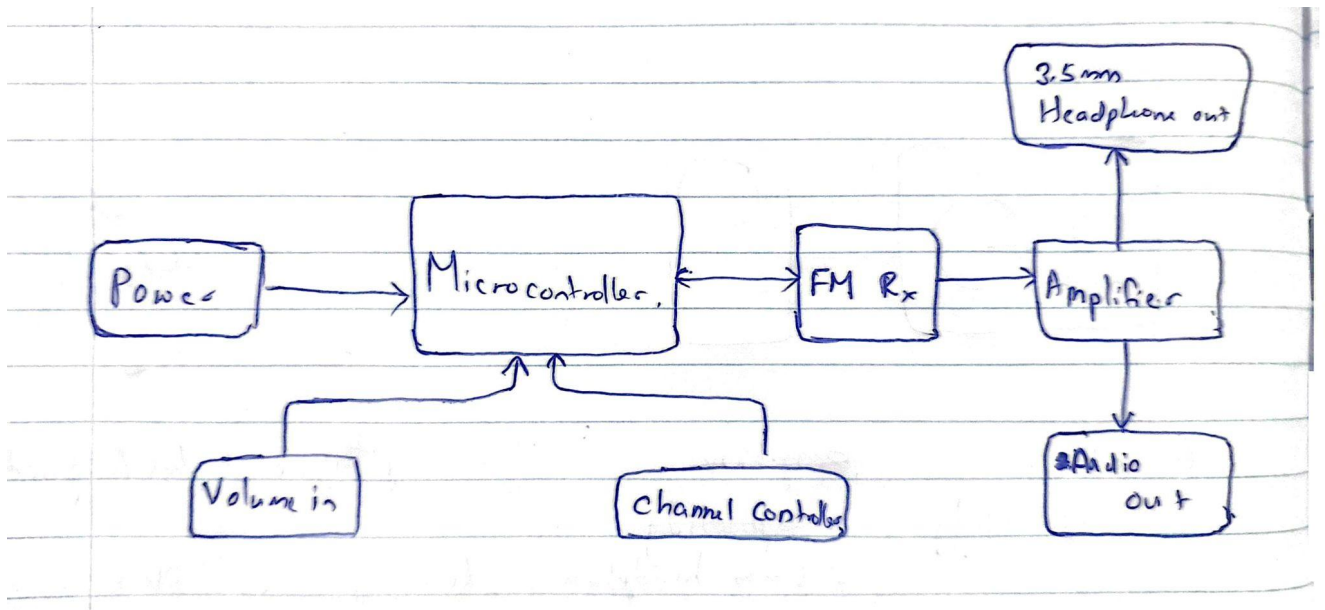
Conceptual design 1



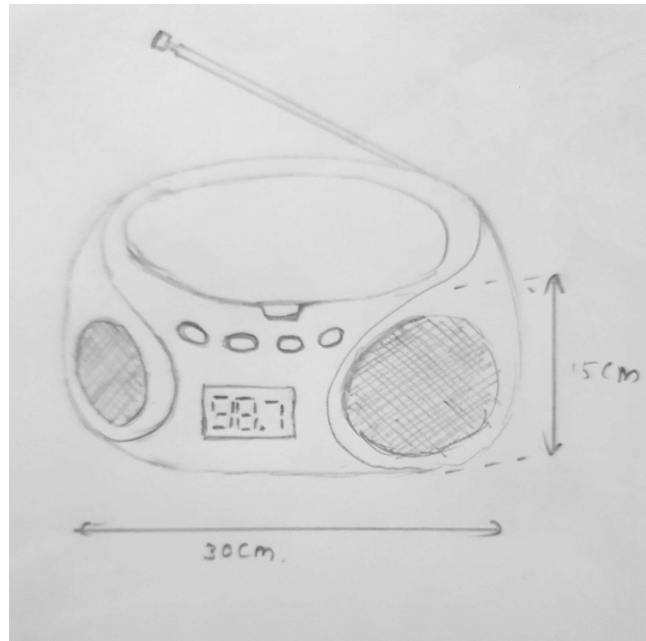
Functional block diagram for conceptual design 1



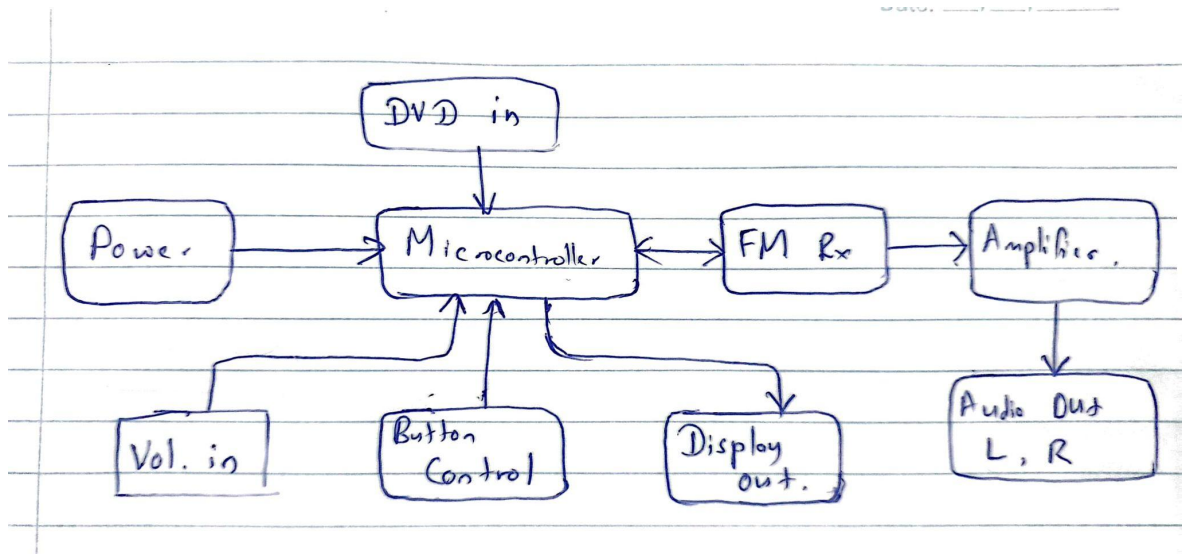
Conceptual design 2



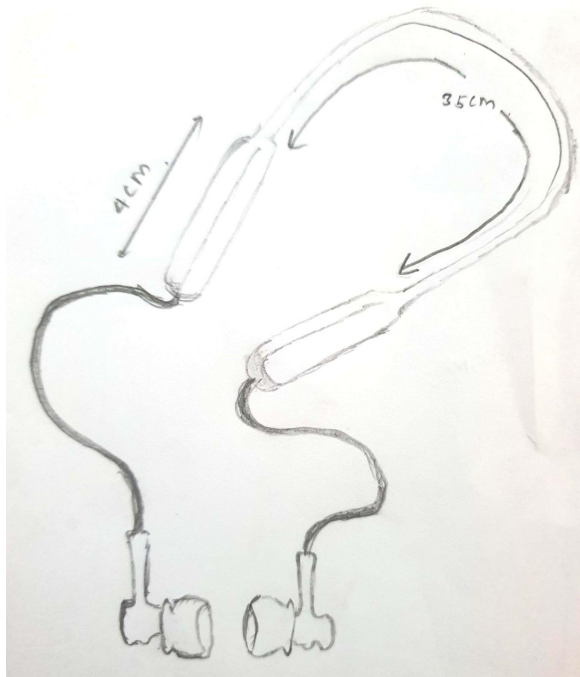
Functional block diagram for conceptual design 2



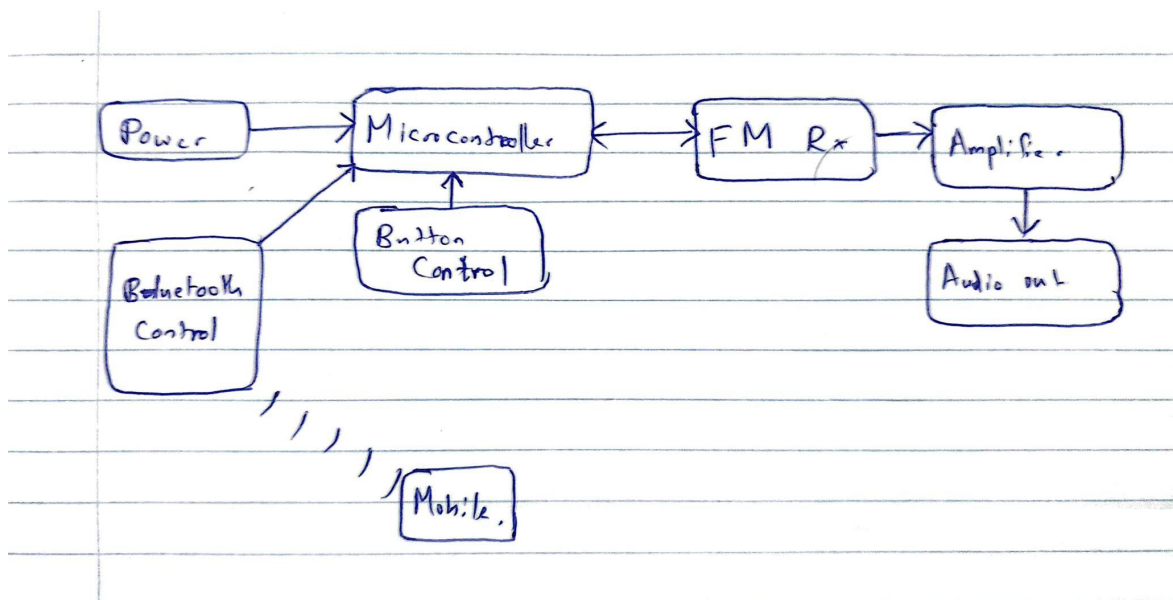
Conceptual design 3



Functional block diagram for conceptual design 3



User centered design



Functional block diagram for user centered design

Complete Comparison

		Conceptual design 1	Conceptual design 2	Conceptual design 3	User centered design
Newly added features		Bluetooth capability	3.5mm headphone out	DVD player	100% portable
		Digital display out	Portability	Stereo speakers	Stereo earbuds
		Can be used as a power bank		Digital display out	Bluetooth
Removed features		Stereo speakers	Digital display	Earphone support	Digital display
		Earphone support	Bluetooth		
Enclosure design criteria comparison	Functionality	8	7	8	6
	Aesthetics	9	7	9	9
	Heat dissipation	9	8	9	6
	Assembly and serviceability	8	7	8	6
	Ergonomics	8	9	9	9
	Simplicity	9	7	7	6
	Durability	9	8	9	8
Functional block design criteria comparison	Functionality	8	7	8	6
	User experience	7	8	9	9
	Manufacturing feasibility	9	7	7	6
	Cost	8	8	7	7
	Performance	7	7	8	7
	Future proofing	7	8	8	9
	Power	7	8	6	9
Total		113	106	112	103

Evaluation Criteria

Enclosure Design Criteria:

1. Functionality: How well the design supports the main functionalities?
2. Aesthetics: How much eye catching and overall appeal of the user?
3. Heat dissipation: How much heat is generated and how well it has been managed?
4. Assembly and serviceability: How easily does the assembly and disassembly is done?
5. Ergonomics: How well does the design fit in the user's hand and allow easy interaction?
6. Durability: How well does the design withstand impacts and environmental conditions?
7. Simplicity

Functional block diagram criteria:

1. Functionality: How well the circuit design meets functional requirements?
2. User experience: How intuitive and user-friendly is the interaction?
3. Manufacturing feasibility: Evaluate the feasibility of manufacturing the design
4. Cost: Evaluate the overall cost effectiveness for the provided functionality
5. Performance: Evaluate signal quality, resolution and bandwidth range?
6. Future proofing: To what extent does the design allow for easy replacement or upgrade of individual components?
7. Power Efficiency: How effectively does the device manage power consumption?

List of names who contributed to Design Driven Innovation

200709K Wikramanayaka R.S.D

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