Facial Authentication for the Web

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TASK TITLE	TIME (Weeks)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Framework Setup																													
Web Portal to capture and transmit video to a remote server	1	█																											
Main server applet to receive input from the web portal	1	█																											
Consolodation layer to manage microservices and process their output and trigger microservice processing	2		█	█																									
Facial Recognition																													
Preprocessing layer - obtaining just the facial area, with histogram equalisation to normalise the content	1				█																								
Autoencoder layer - producing a vector from an image of a face using an autoencoder	3					█	█	█																					
Database searching layer, utilising the vector from the autoencoder, coupled with query to find similarity	1								█																				
Siamese NN - a potential alternative that could also be tried if necessary	3									█	█	█																	
Liveness Tests																													
Key frame service to pick key frames from a much larger video	1												█																
CNN model to detect liveness based on non-linear diffusion	3													█	█	█													
Adding two way communication to our system, allowing instructions to be sent to the client side	1																█												
Building a word recognition model based on lipreading	3																	█	█	█									
Building some lipreading confirmation model that's accurate enough for our captcha method	1																				█								
Pupil tracking - building a model based on this approach	3																					█	█	█					
Gathering statistics for each component, based on accuracy	4																								█	█	█	█	